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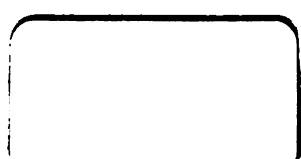
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FIRST THEORY BOOK
.. ANGELA DILLER ..

Mus 283.13



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FIRST THEORY BOOK

By

ANGELA DILLER



NINTH ISSUE

G. SCHIRMER, Inc., NEW YORK



Mus 283.13

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Printed in the U. S. A.

PREFACE

Object

The object of this Theory Book is to provide the student with such a background of musical experience, through his *sense of hearing*, as well as through his intelligence, as shall enable him to study to some purpose Form, Harmony, and the other branches of Musical Theory.

The work covered in this book is, therefore, distinctly preparatory, and is intended to precede, not to replace, more formal study.

Method of Study

The subject-matter of all theory books is approximately the same. The differences between them are largely in the order and manner of presentation of the various topics. In this book, the explanations and directions for practising the Exercises may seem unnecessarily detailed; but, at the risk of being tedious, the author has endeavored to write out the consecutive steps that most students must take in mastering the different subjects.

In the opinion of the author, phrasing should be introduced in music-study at the earliest possible moment; hence its place at the beginning of the book. The experienced teacher will, of course, teach two topics, such as Phrasing and Scales, or Note-Values and Scales, at the same lesson, if it seems advisable to do so.

Ear-Training

The most vital part of the whole subject of Theory teaching is Ear-training. It is impossible to overstate the importance which the training of the ear should occupy in the minds of both teacher and pupil.

It is much more necessary that a pupil shall recognize scale-degrees, intervals, chords, etc., by hearing, than that he shall know them merely by name, or when he sees them on paper.

As far as possible, everything that the pupil learns as an intellectual fact, should first have been registered through his sense of hearing.

Dictation, oral and written, is the surest way for a teacher to discover just how much a pupil hears. It is almost impossible to spend too much time on dictation exercises.

The pupil can train his own ear to a large extent by singing. Therefore, many of the exercises are to be sung.

It is so very possible for a pupil to write a correct exercise without having the vaguest idea of what it sounds like, that the author suggests that the pupil shall sing aloud the pitch of every note *while he writes it*. All writing should, of course, be done away from the piano.

Necessity of Correlated Study

The author is convinced that the first approach to the theoretical study of music should be through the sympathetic analysis of music itself. It is better for a pupil to discover the fundamental laws of harmonic progression, by analyzing simple melodies simply harmonized, than it is for him to be told about chords that are easy to explain theoretically, but which he will seldom meet in the music he is playing.

Many a student of Harmony who can recognize an intricate series of chords on paper, is quite unable to recognize even the most elementary harmonies when he hears them, or when they are used in connection with a simple melody; to say nothing of being able to harmonize a simple melody on the piano.

Nothing is more deadening than a collection of "inert facts."

The author has endeavored to put into practical and convenient shape some of the material used and developed during many years' teaching. After going through the exercises, the average student should have acquired a fairly good ear, and a general knowledge of the most familiar chords. He should be able to study a book on Harmony with comparative ease and intelligence.

ANGELA DILLER.

New York, Jan., 1920.

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PART ONE

CHAPTER ONE

Rhythmic Design

Rhythm is the motion of music.

Meter expresses the way in which this motion is measured.

The simplest meter consists of two beats or pulses, a heavy beat and a light beat. Either of these beats may come first. In each case the meter is the same, because two beats are involved; but the rhythmic feeling of the two is entirely different. Any word of two syllables illustrates this rhythmic grouping. The word "donkey" is an example of the heavy beat coming first. The word "giraffe" is an example of the light beat coming first.

The bar in music is placed before the stressed beat of each measure. This beat is counted "*One.*" If the meter of the words "donkey" and "giraffe" were expressed in note-values, and each syllable were a quarter-note, the bars would be placed before the stressed syllables as follows:

|Donkey = | P P
Gi|raffe = P | P

The meter of both words is $\frac{2}{4}$ ("two-four"), but the rhythmic feeling of the words is different. This rhythmic feeling, or *Rhythmic Design*, may be expressed in numbers showing which syllable is stressed. The rhythmic design of Donkey is "*One-Two*," and of Giraffe, "*Two-One*."

The tune beginning



is a musical example of the rhythmic design "*One-Two*."

The tune



is an example of the rhythmic design *Two-One*.

EXERCISE 1. Write a list of ten words illustrating the rhythmic design *One-Two*.

EXERCISE 2. Write a list of ten words illustrating the rhythmic design *Two-One*.

EXERCISE 3. Look over the melodies on pages 12 and 13, and find examples in $\frac{3}{4}$ meter of each of the above rhythmic designs.

The same possibilities of rhythmic design occur in $\frac{3}{4}$ meter, where we have one heavy beat and two light ones.

In $\frac{3}{4}$ ("three-four") meter there is the rhythmic design *One-Two-Three*, illustrated by the word "elephant":

$\frac{3}{4} | \text{P} \text{ P} \text{ P}$

Much more common musically is the rhythmic design Three-One-Two, illustrated by the word "mosquito": $\frac{3}{4} \text{p } | \text{p } \text{p}$

And less frequently there is the rhythmic design Two-Three-One, illustrated by the word "kangaroo": $\frac{3}{4} \text{p } \text{p } | \text{p}$

The following are musical examples of these rhythmic groupings. This melody



is an example of the rhythmic design One-Two-Three.

The following is an example of the rhythmic design Three-One-Two:



And this is an example of the rhythmic design Two-Three-One:



EXERCISE 4. Write a list of ten words illustrating the rhythmic design One-Two-Three.

EXERCISE 5. Write a list of ten words illustrating the rhythmic design Three-One-Two.

EXERCISE 6. Write a list of ten words illustrating the rhythmic design Two-Three-One.

EXERCISE 7. Look over the melodies on pages 11 and 12, and find examples in $\frac{3}{4}$ meter of the rhythmic designs One-Two-Three and Three-One-Two.

In $\frac{4}{4}$ meter there are four rhythmic designs, namely, One-Two-Three-Four, Four-One-Two-Three, Three-Four-One-Two, and, very rarely, Two-Three-Four-One.

Words illustrating these rhythms are: {

Dromedary		♩	♩	♩	♩
Rhinoceros	♩		♩	♩	♩
Anaconda	♩	♩		♩	♩
Misrepresent	♩	♩	♩		♩

The following melodies illustrate these rhythmic groupings. Here is an example of the rhythmic design One-Two-Three-Four:



The next is an example of the rhythmic design Four-One-Two-Three:



This is an example of the rhythmic design Three-Four-One-Two:



Lastly, an example of the rhythmic design Two-Three-Four-One:



EXERCISE 8. Write a list of six words illustrating the rhythmic design One-Two-Three-Four.

EXERCISE 9. Write a list of six words illustrating the rhythmic design Four-One-Two-Three.

EXERCISE 10. Write a list of six words illustrating the rhythmic design Three-Four-One-Two.

EXERCISE 11. Write a list of three words illustrating the rhythmic design Two-Three-Four-One.

EXERCISE 12. Look over the melodies on pages 11 and 14, and find examples in $\frac{4}{4}$ ("four-four") meter* of the rhythmic designs. One-Two-Three-Four, Four-One-Two-Three, and Three-Four-One-Two.

EXERCISE 13. What is the rhythmic design of:

1. Schumann's Soldiers' March.
2. Handel's Largo.
3. Swanee River.
4. Auld Lang Syne.
5. "Pilgrims' Chorus" from *Tannhäuser*.
6. Home, Sweet Home.
7. Annie Laurie.

Rhythmic grouping is the most important element in intelligent playing. It bears the same relation to the meaning of music, that correct grouping of words does to the meaning of language.

The most *usual* rhythmic designs, are those that begin on either the first or the last beat of the measure. That is, in $\frac{2}{4}$ meter the usual rhythmic designs are One-Two, and Two-One; in $\frac{3}{4}$ meter the usual rhythmic designs are One-Two-Three, and Three-One-Two; and in $\frac{4}{4}$ meter the usual rhythmic designs are One-Two-Three-Four, and Four-One-Two-Three.

Many people count "by the measure," always beginning on the first note after the bar, and pausing to take breath before the next bar. That is, they will count *any* piece written in $\frac{3}{4}$ meter One-Two-Three, quite irrespective of what the *rhythm* of the piece may be. But, for example, it is as unintelligible to count "The Star-Spangled Banner" One-Two-Three, and to group from bar to bar:



*The term "meter" (in the phrases "two-four meter," "three-four meter," etc.) is used instead of the more generally accepted term "time" ("two-four time," "three-four time," etc.) to prevent the possible confusion of *time* (rate of speed) with *time* (division of the measure). Hence, further on, the term "meter-sign" is employed instead of "time-signature."

as it would be to group the words, "Oh say, can you see, By the" in reading the poem.

In general, the same rhythmic design persists throughout a tune. Later we shall find infinite variations within the general rhythmic scheme. For example, the Bach Minuet quoted below is in $\frac{3}{4}$ meter; but if it is phrased as indicated (which makes very good sense), we find the following rhythmic designs : *One-Two-Three*, then *Three-One-Two*, then *Two-Three-One*.



CHAPTER TWO

Phrasing

Phrasing in music means the *grouping* of tones into phrases and sentences. The rhythmic element plays a most important part in phrasing, although the melodic element (the shape of the tune as regards pitch) and the harmonic element (the combinations of tones heard with the melody) are also to be considered.

As a preliminary study to the phrasing of melodies, we will discuss the rhythm of lines of poetry. We found that the rhythmic character of words can be roughly expressed by note-values. The same is true of simple lines of poetry.

Take, for example, the line:

Sunlight falls on tree and grass.

If a bar is placed before each stressed syllable, and a double-bar at the end of the line, we have:

| Sunlight | falls on | tree and | grass. ||

If the line is repeated aloud in a "sing-song," it will be noticed that we instinctively pause after the word "grass," or else hold it twice as long as each of the other syllables. Therefore, if note-values are written under the syllables, we have:

$\begin{matrix} 2 \\ 4 \end{matrix}$ | Sunlight | falls on | tree and | grass, ||
or ρ

with "grass" expressed by a quarter-note and a quarter-rest, or by a half-note

The meter is $\frac{2}{4}$ and the rhythmic design *One-Two*, that is, $\begin{matrix} 2 \\ 4 \end{matrix}$ | ρ ρ ||

The line might also be expressed in $\frac{3}{4}$ meter, with the first note of each measure twice as long as the second: $\begin{matrix} 3 \\ 4 \end{matrix}$ | Sunlight | falls on | tree and | grass, ||

$\begin{matrix} 3 \\ 4 \end{matrix}$ | ρ ρ | ρ ρ | ρ ρ | ρ ρ ||
or ρ .

In this case the word "grass" fills an entire measure, and has three counts. The bars are in the same places as in the $\frac{2}{4}$ version, but the meter is now $\frac{3}{4}$, and the rhythmic design *One-Two-Three*: $\begin{matrix} 3 \\ 4 \end{matrix}$ | ρ ρ ρ ||

It is simpler, however, to write it in $\frac{2}{4}$ meter.

If the line were: "The sunlight falls on tree and grass," it would be written:



The meter is still $\frac{2}{4}$, but the rhythmic design is now Two-One. The "grass," as a pupil observed, has been cut short and is expressed by a quarter-note.

The line "Summer is coming and soon will be here," would be written:



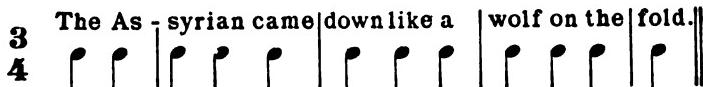
Meter, $\frac{3}{4}$; rhythmic design, One-Two-Three.

The line "The moon has a face like the clock in the hall," would be written:



Meter, $\frac{3}{4}$; rhythmic design, Three-One-Two.

The line "The Assyrian came down like a wolf on the fold," would be written:



Meter, $\frac{3}{4}$; rhythmic design, Two-Three-One.

EXERCISE 14. Copy the following lines. Place a bar before each accented syllable, a double-bar at the end of each example, and write the note-values under each syllable. Use $\frac{2}{4}$ and $\frac{3}{4}$ meter only. State meter and rhythmic design of each example.

1. The leaves are dancing in the breeze.
2. Hear the skylark singing clear.
3. Merrily, merrily, over the snow,
Merrily, merrily, sleighing we go.
4. In winter I get up at night
And dress by yellow candle-light.
5. Now the sun is laid to sleep.
6. The summer is fading, the autumn is near.
7. The waves are dancing fast and bright.
8. In their nests in the tree-tops the birds are asleep.
9. Hurrying, skurrying, rushes the brook.
10. Haste thee, nymph, and bring with thee
Mirth and youthful jollity.

Very often two syllables come on one beat. They would be written as two eighth-notes. Example:



Very often a line will be irregular in the number of its syllables, although the rhythmic feeling of the line is perfectly simple. Example: "Warmly and broadly the south winds are blowing." The last measure, "Blowing," has two syllables instead of three. The first syllable has the greater length, so it is written as a half-note.



EXERCISE 15. Copy the following lines. State meter and rhythmic design of each. Be sure that the bars are placed correctly; then write the note-values.

1. Hot cross buns;
Hot cross buns,
One a penny, two a penny,
Hot cross buns.
2. Rain, rain, go away,
Come again another day.
3. There once was a bird that lived up in a tree,
And all he could whistle was, "Fiddle-dee-dee."
4. Twinkle, twinkle, little star,
How I wonder what you are.
5. Oh, laughing and singing the brook flows along
And sings as it travels the wind's merry song.
6. A birdie with a yellow bill
Hopped upon my window-sill.
7. Swing high, swing low,
While the breezes they blow.
8. Open the gates as high as the sky
And let King George and his men pass by.
9. With waving of banners and beating of drums,
With sounding of trumpets the General comes.

The next step is to learn the phrasing of simple melodies.

The first thing to do is to look over the melody as a whole, and find out the relationship of the different phrases; that is, to discover what phrases are alike and what are unlike. Music, unfortunately, is printed so that nothing in the spacing on the page helps the eye to see these relationships.

Poetry, on the contrary, is usually printed so that the eye can follow the rhythm by the length of the lines, and can follow the rhymes by the indentation on the page of the lines with rhyming endings. For example, take the stanza:

Now the day is over,
 Night is drawing nigh,
Shadows of the evening
 Steal across the sky.

The eye realizes at once that the four lines are to be taken as a whole, that the first and third lines are related, and that the second and fourth indented lines are related. If the stanza were printed as follows:

Now the day is over, night is drawing nigh, shadows of the evening steal across the sky.

though the rhythm and rhymes are the same, it takes much longer to discover the rhythmic sense, as there is nothing to make it clear to the eye.

Music often has the same elements of rhythm and rhyme that poetry has, but is always printed as though it were prose.

For example, take the folk-tune:



If this tune were printed as follows, the Form would certainly be clearer.



The eye now sees at a glance that the first and fourth lines are alike, and that they are twice as long as the other two, and that the second and third lines are alike. It is clear also that there is a contrast between the *shape* of the melody of the first and fourth lines, and that of the second and third lines. The first and fourth have a wide compass, and follow roughly the outline



While the second and third lines follow the outline



In every melody and in every piece we find these two ideas:

- (1) Repetition or Similarity, and
- (2) Contrast.

The student should accustom himself to discover these repetitions and contrasts as rapidly as possible, because nothing will be of greater help to him in sight-reading and memorizing.

There is no "Rule" to be followed in phrasing. Music is not made of uniform blocks put together, and we are not trying to make it fit into mathematical designs like an oil-cloth pattern. The thing we *are* trying to do is to discover that every tune "makes sense," and to indicate what the sense is. It is somewhat like reading a sentence with proper inflection. For example, the sentence "It was and I said not or" seems meaningless until the words "and" and "or" are emphasized, and a slight pause is made after the word "said": "It was *and* I said, not *or*."

Very often a sentence can be inflected in *different* ways and each of them will make sense. For example, the sentence, "The boy ate a green apple," conveys a variety of meanings, depending on which word is emphasized.

Often a *musical sentence* can also be phrased in different ways, each of which will make sense. For example, the melody beginning:



has one meaning if it is played as written above in the rhythm *One-Two*; and has a different meaning if played in the rhythm *Two-One*:



It all depends on what we mean; and the important thing is that we shall mean *something*.

A clear way to indicate groupings in a melody, is to mark the large groups with a long horizontal line [], and the smaller divisions with a short vertical line |.

For example, sing or play the following melody:



It is a square little tune of eight measures, and it divides itself naturally into two groups of four measures each. Therefore, each group of four measures is marked with a long line, as follows:



The first two measures of each group are identical, and there is a slight break in the sense after the second measure. Therefore, these two places are marked with a short line after the second measure of each long group, much as a comma is used in punctuating a sentence:



The third and fourth measures of the first group are alike in rhythm and in shape, though different in pitch. This sort of repetition is called a *sequence*. There is a slight break in the sense, so the sequence is punctuated with a short line. There is no other possible break in the second half of the piece, and the melody finally appears punctuated as follows:



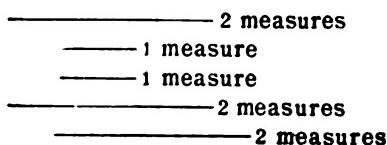
If this melody were written on short lines like poetry, it might either be spaced as below:



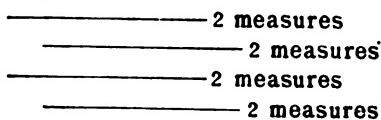
or thus:



A diagram of the length of lines of the first arrangement would be:



and of the second arrangement:



Each is correct, and each gives approximately the same idea of the inter-relationship of the parts.

The first eight measures of the Beethoven Minuet, from the Sonatina Op. 49, No. 1, might be spaced:

It would be expressed with phrase-marks as follows:



The rhythmic design of this melody is Three-*One*-Two, and the groups end on the second count; so the punctuation-mark in each case comes after the rest $\frac{1}{2}$ on the second count, *not* after the note on the first count.

The object of this discussion is not primarily to make diagrams on paper. It is to help us to play more intelligently. Diagrams are only one of the many means to be employed in gaining an understanding of the subject-matter, and of the relationship of the parts, of the music that we are studying.

The more we realize the sense of what we are playing, the more enjoyment we get from our music study; and the clearer our own conception is, the clearer is the idea that we can give to our hearers, of what the music means. It is possible, of course, to play all the notes of a piece without making any sense at all. It is as though we had been taught to pronounce perfectly all the words of a French poem, but did not understand the meaning of what we were saying. If we were to read it aloud to a Frenchman, he could tell at once that we did not understand *French*, however well we might pronounce the words. In the same way, if we play only the *notes* of a piece of music, without understanding the sense of what we play, a musician would know at once that we did not understand *music*, however facile our playing might be.

The first melody in Exercise 16 is an English folk-tune, "Hark, the tiny cowslip bell." It is composed of four phrases. The first, second and fourth phrases are the same. In these three phrases the first and third measures are the same. The third phrase is in contrast to the others, but the first and second measures of *this* phrase are the same. The melody is sixteen measures long, but there are only six *different* measures. After we have read the tune through, and discovered these repetitions, it should not take more than two or three minutes to memorize it.

EXERCISE 16. Study the following melodies. Notice the Form of each; that is, notice number of phrases (phrase meaning group); notice which phrases are alike, and which are different; notice where the rhythms and melodic shapes are repeated. Memorize the melodies accurately and rapidly, so that you can sing and play them.

1

2 

3 

4 

5 

6 

7 

8 



EXERCISE 17. Phrase the following melodies. First sing or play each melody straight through, to get the general sense. Then mark the large groupings, and after that the smaller ones. Avoid making too small subdivisions. Memorize each melody. "Image the whole, then execute the parts."



5

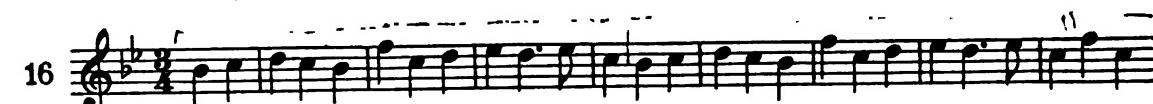
6

7

8

9

10





18

19

EXERCISE 18. Study the following melodies and draw plan of Phrase-lengths, as in the first example given below.



2
2
2
2
1
1
2



EXERCISE 19. Analyze the following melodies. Look over each tune *as a whole*. Notice the melodic curves and the rhythmic repetitions. Decide which notes are stressed and what the rhythmic design is. Put in the bars, and the meter-sign if it is lacking. Mark phrasing, study form, and memorize. Draw plan of phrase-lengths.

1

2

3

4

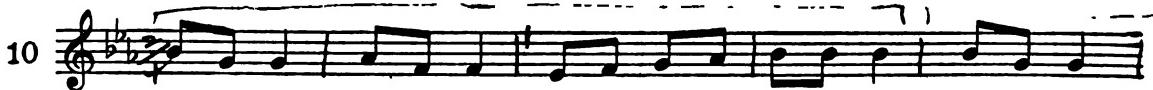
5

6

7

2
2
2
2
2
2
2

1
4



CHAPTER THREE

Major Scales and Signatures

The word "key" has two meanings. It refers to the black or white keys of a piano, and is used in this sense in the following paragraphs. The other meaning is given later.

The word "tone" means the sound that is produced when the hammer strikes the string.

The word "note" means the written symbol: etc.

The distance from any key on the piano to the one next above or next below, either black or white, is a half-step. Some theorists call this a "half-tone."

The white keys are commonly called Naturals (\natural), C, D, E, etc., although each white key has other names as well.

The half-step above a natural, whether a white key or a black key, is its sharp (#); and the half-step above the sharp is its double-sharp (x).

The half-step below a natural is its flat (\flat), and the half-step below the flat is its double flat ($\flat\flat$).

Each key, therefore, may have a number of names. For example, the black key between C and D is C \sharp or D \flat or B x . The key C is also B \sharp or D $\flat\flat$.

EXERCISE 19. Find these keys on the piano: D \sharp , E \flat , F, E \sharp , F x , A \flat , B \sharp , C x , D \flat , E, G \flat , C \flat , B \sharp , C, A $\flat\flat$, B x , A, G x .

EXERCISE 19A. Find on the piano five kinds of E: that is, E, E \sharp , E x , E \flat , E $\flat\flat$. Find five kinds of G. Find five kinds of B.

EXERCISE 19B. Point to each key on the piano between C and the octave C above, and give each key as many letter-names as possible. The key G \sharp is also called A \flat . This key has *two* letter-names. Each of the other keys has *three* letter-names.

A half-step, then, may be written different ways.

Example:

If two keys are given the *same* letter-name, the half-step is called *Chromatic*.

Example:

If the two keys are given *consecutive* letter-names, that is, according to alphabetical order, the half-step is called *Diatonic*.

Example:

If the same key is given two different letter-names, it is called an *Enharmonic change*.

Example:

To summarize:

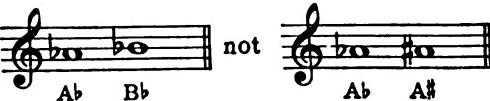
(1) A chromatic half-step is composed of two tones of different pitch and the same letter-name.

(2) A diatonic half-step is composed of two tones of different pitch and consecutive letter-names.

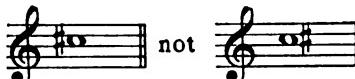
(3) An enharmonic change means that two different letter-names are given to one tone.

The two diatonic half-steps B-C and E-F are each composed of *two* naturals. All other diatonic half-steps contain either a sharp or a flat; for example, C-D \flat , C \sharp -D.

Two half-steps make a whole step. Whole steps are usually diatonic, that is, they have consecutive letter-names.

Example:  not 

It will be noticed that in writing notes on the staff the \sharp or \flat (called the accidental) is placed *before* the note:

 not 

while in type it *follows* the letter, C \sharp , not \sharp C.

EXERCISE 20. Name each of the following intervals, calling them either chromatic half-step, diatonic half-step, enharmonic change, or whole step. In naming, use this formula aloud: "B \flat up to C is a whole step; F up to G is a whole step; F \sharp down to F is a chromatic half-step"; etc.



EXERCISE 21. Write four examples, not given above, of each of these four intervals:

- Diatonic Half-step.
- Chromatic Half-step.
- Whole step.
- Enharmonic change.

A *Scale* is a succession of eight tones arranged in alphabetical order from any letter to the same letter an octave above. This letter is called the "keynote." The word "key" in this sense means the notes of a scale in relation to the keynote. That is, a melody is written, for example, in the key of G, meaning that G is the keynote, the tonal center.

Scales are composed of *Tetrachords*. A Tetrachord is a succession of four tones. The spacing of the tones in the Tetrachord that we shall now study is

- A whole step between the first and second tones.
- A whole step between the second and third tones.
- A diatonic half-step between the third and fourth tones.

Example: 

The major scale is composed of two such tetrachords, the second one beginning a whole step higher than the upper note of the first.

Example:



This is the scale of C Major, taking its name from its lowest (or highest) tone, which is its keynote.

Each tetrachord belongs to two scales. If this tetrachord



is used as the lower tetrachord of a scale, and a second tetra-

chord is placed a whole step above it, we have



This is the scale of G Major.

In the same way the upper tetrachord of the scale of G is also the lower tetrachord of the scale of D:



It is observed that one new sharp is added to form each scale. This process can be repeated until the scale of C[#] is reached, where each note is a sharp. There are seven scales in which sharps occur. These *Sharp Scales* are G, D, A, E, B, F[#] and C[#].

EXERCISE 22. Play all the sharp scales in tetrachords. Use two hands, playing one tetrachord with each hand, and finger as below, not using the thumbs. Name each note aloud as you play, being careful to use the correct diatonic letter-names. Play in the middle part of the keyboard, playing the repeated tetrachord an octave below when necessary (as in the third example on D), to avoid bringing the hands into an awkward position, too high on the keyboard.

It was found that the upper tetrachord of the scale of C is also the lower tetrachord of the first sharp scale, G.—The *lower* tetrachord of C,



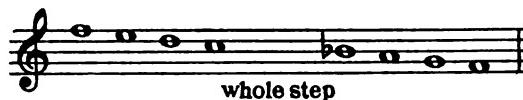
is also the *upper* tetrachord of the scale of F. This is the first of the seven *Flat Scales*.

In order to form the *flat* scales by the process of overlapping which has been employed in forming the sharp scales, it is necessary to play the notes of the tetrachords in descending order, beginning with the upper note of each; that is,



For convenience of writing, this tetrachord is placed an octave higher than in the last example:

The second tetrachord begins a whole step *below* the lower note of the first one:



This forms the scale of F Major, using one flat.

The lower tetrachord of this scale is also the upper tetrachord of the scale of B♭:

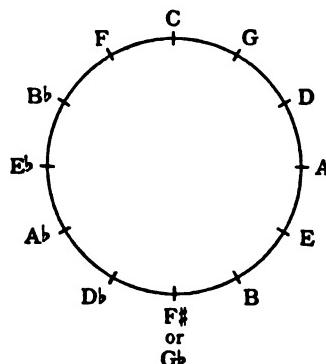


It is observed that one flat is added to form each new scale. This process can be repeated until the scale of C♭ is reached, where each note is a flat.

There are seven *Flat Scales*. They are F, B♭, E♭, A♭, D♭, G♭ and C♭.

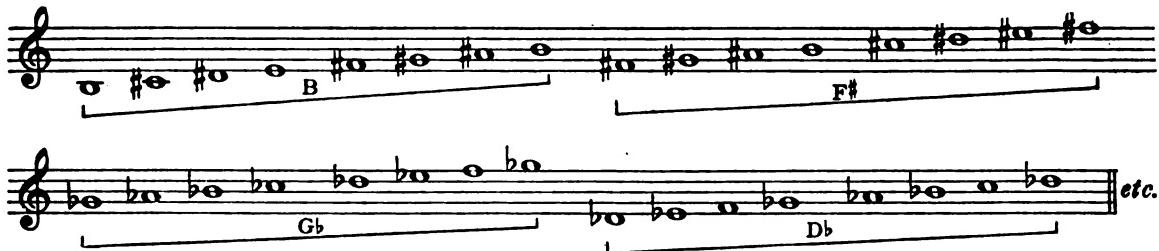
EXERCISE 23. Play all the flat scales in tetrachords. Use both hands, and finger as below. Name each note aloud as you play.

The following diagram shows the relationship of all the Major scales.



It will be noticed that the scales of F[#] and G_b are enharmonic, coming at the opposite side of the circle from the starting-point C. The scales of C[#] and C_b are seldom used, and have been omitted from the diagram. D_b is usually used instead of C[#], and B instead of C_b.

It is possible to play all the scales, both sharp and flat, in overlapping tetrachords, beginning at C and continuing *in the same direction* around the circle until C is reached again. The scale of F[#] would be played, and then repeated enharmonically as the scale of G_b; next would come D_b, then A_b, etc., as follows (beginning at B):



EXERCISE 24. Play the above circle of scales, from C to F[#], and from G_b to C.

EXERCISE 25. Recite these scales from memory, grouping in tetrachords. Speaking the letters rhythmically is a help in memorizing.

Example: C-D-E-F. G-A-B-C. G-A-B-C. D-E-F[#]-G.

or, expressed in note-values: $\frac{3}{4}$ C D E | F G A B | C

The sharps or flats necessary to form a major scale constitute its *Key-Signature*.

In forming the sharp scales from the keys of C to C[#], the sharps occur in this order: F-C-G-D-A-E-B. In forming the flat scales from the keys of C to C_b, the flats occur in this order: B-E-A-D-G-C-F.

The sharps or flats are always written on the staff in this order, each new sharp or flat being written to the right of the last one, as follows:



EXERCISE 26. Memorize the order of sharps and the order of flats as they occur in the above signatures.

EXERCISE 27. Memorize the following table of keys and signatures.

- C Major has no sharps or flats.
- G Major has one sharp, F#.
- D Major has two sharps, F# and C#.
- A Major has three sharps, F#, C# and G#.
- E Major has four sharps, F#, C#, G# and D#.
- B Major has five sharps, F#, C#, G#, D# and A#.
- F# Major has six sharps, F#, C#, G#, D#, A# and E#.
- C# Major has seven sharps, F#, C#, G#, D#, A#, E# and B#.
- F Major has one flat, Bb.
- Bb Major has two flats, Bb and Eb.
- Eb Major has three flats, Bb, Eb and Ab.
- Ab Major has four flats, Bb, Eb, Ab, and Db.
- Db Major has five flats, Bb, Eb, Ab, Db and Gb.
- Gb Major has six flats, Bb, Eb, Ab, Db, Gb and Cb.
- Cb Major has seven flats, Bb, Eb, Ab, Db, Gb, Cb and Fb.

It will be noticed that the order of sharp keys follows the same series of letters as the sharps themselves, if we go to the *right* in the diagram of the circle of keys.

Order of keys: C -G -D -A -E -B -F#.

Order of sharps: F#-C#-G#-D#-A#-E#-B#.

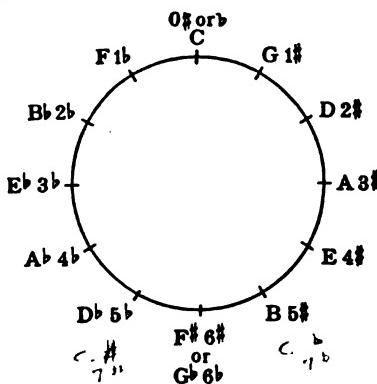
The order of flat keys follows the series of letters of the flats themselves, if we go to the *left* in the diagram.

Order of keys: C-F-Bb-Eb-Ab-Db-Gb.

Order of flats: Bb-Eb-Ab-Db-Gb-Cb.

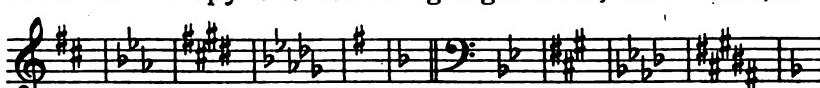
EXERCISE 28. Write the signatures of the following Major keys: C, D, Bb, F#, A, B, Ab, E, Eb, Gb, G, Db, F. Use treble and bass clefs. Be careful to write each sharp or flat to the right of the previous one.

The diagram of the circle of keys may be completed by writing the signatures beside each letter, as follows:



EXERCISE 29. Draw the above diagram from memory.

EXERCISE 30. Copy the following signatures, and underneath write the key of each.



EXERCISE 31. Correct the following signatures. The sharps and flats are either placed on the wrong line or space, or are written in the wrong order.



An excellent way of gaining facility in thinking in the different scales and keys, is to memorize the series of *alternate* letters that occur in music, beginning at C, and continuing until C is reached again,

C-E-G-B-D-F-A-C.

EXERCISE 32. Recite this series of letters fluently; C-E-G-B-D-F-A-C.

EXERCISE 33. Recite each combination of three consecutive letters from the above series, beginning each new combination on the last letter of the preceding one. The entire series must be gone through twice before C is reached: C-E-G, G-B-D, D-F-A, A-C-E, E-G-B, B-D-F, F-A-C, C-E-G. Fluency in grouping these letters will be invaluable later, when chords are studied.

The tones of the scale are called *Degrees*. The degrees are numbered from One to Seven. The octave is numbered One again.

Example:

Key of C:	1-C	Key of A:	1-A
7-B		7-G#	
6-A		6-F#	
5-G		5-E	
4-F		4-D	
3-E		3-C#	
2-D		2-B	
1-C		1-A	

Some theorists use the word "step" as meaning "degree." Thus the "first step" of C would be C, the "second step" D, etc.

The most important combination of numbers in each key is 1-3-5, which forms the chord of the key. In the key of C the corresponding letters are C-E-G. In the key of G they are G-B-D; in D, D-F#-A; etc. It will be noticed that these letters are the same combinations that were given in Exercise 33. They need only the proper sharps and flats to form all of the major-key chords.

Example: A-C#-E is 1-3-5 of A Major.

A♭-C-E♭ is 1-3-5 of A♭ Major.

The *letters* A-C-E are the same in both cases.

EXERCISE 34. Recite fluently, using letter-names, 1-3-5 in each of these major keys, being careful to use the proper accidentals: C, G, D, A, E, B, F#, F, B♭, E♭, A♭, D♭, G♭.

To acquire familiarity with the other degrees of the scale, it is well to use 1-3-5 as a guide. For example, in the key of C, to find 4, think 1-3, then 4; that is, think C-E and say F, instead of going through *all* the numbers 1-2-3-4, C-D-E-F.

To find 6, think 1-3-5, then 6; that is, think C-E-G, and say A, instead of going through the entire scale.

To find 7, go down a diatonic half-step instead of going up seven degrees; that is, to find 7 of C, go down a half-step to B.

To find 7 of A♭, go down a half-step to G.

To find 7 of E, go down a half-step to D#.

These "short cuts" in finding one's way around in any key will be of use later in studying chords, and in modulating from one key to another.

EXERCISE 35. In the key of G, what letter corresponds to each of the following numbers: 1-5-7-3-2-4?

What number corresponds to each of the following letters: B-F#-C-D-A-E-G?
 In the key of B \flat , what letter is 5-6-2-4?
 What number is B \flat -D-E \flat -A-F?

The note C is 1 of what key?
 The note C is 5 of what key?
 The note C is 7 of what key?
 The note C is 6 of what key?

2 of the key of C is 5 of what key?
 5 of the key of G is 2 of what key?
 3 of A is 5 of a key whose signature is—?
 A chromatic half-step above C is 7 of what key?

The following are *Chain-questions*. This means that each answer becomes the starting-point of the next question in the chain. In the first chain-question given below, each answer is written in parenthesis.

EXERCISE 36. (1) Start on A; 3 of that key (C \sharp) is 7 of a certain key (D); what is its signature?—*Answer:* Two sharps.

(2) Start on B \flat ; change it enharmonically; it is now 3 of what key? This is 2 of what key?

(3) 3 of the key of D is a certain note. Change it enharmonically, and it is 4 of what key? This is 5 of—?

(4) A is 5 of a certain key. This note is 2 of what key? This is 2 of a key whose signature is—?

EXERCISE 37. Write six chain-questions and answers similar to the above. Put six items in each chain-question.

Any note can belong to seven different keys, as in the following table:

D is 1 of the key of D.
 D is 2 of the key of C.
 D is 3 of the key of B \flat .
 D is 4 of the key of A.
 D is 5 of the key of G.
 D is 6 of the key of F.
 D is 7 of the key of E \flat .

Naturals keep the same letter-names throughout all seven keys. Sharps and flats are sometimes changed enharmonically when they are put in different keys. For example:

A \flat is 1 of the key of A \flat .
 A \flat is 2 of the key of G \flat .

But, G \sharp (*not* A \flat) is 3 of the key of E, because A \flat would be 3 of the key of F \flat , and there is no such key.

EXERCISE 38. Write a table like the above, showing the seven keys to which the note G belongs.

Write a table showing the seven keys to which the note B belongs.

Write a table showing the seven keys to which the note F \sharp (or G \flat) belongs.

Each scale-degree has a *Name* as well as a number and a letter. These names describe either the character of the tones, or their position in the scale.

The first degree gives the *Tone* of the entire key, and is called the *Tonic*.

The tonic expresses finality; it is the point of rest in the key. Almost every piece ends with the tonic in the bass, and some arrangement of 1-3-5 (the Tonic Chord) in the treble.

The governing or *dominating* note in the key is 5. It is called the *Dominant*. Very many pieces have 5 for next to the last bass note, so that the left hand ends 5-1; or, expressed in words, Dominant-Tonic. In the key of G the Dominant-Tonic ending is D-G. In the key of A it is E-A.

EXERCISE 39. Recite the Tonic, Dominant, and Tonic Notes in all keys.
Example: C-G-C, G-D-G, D-A-D, etc.

EXERCISE 40.

A is the Tonic, what is the Dominant? *Ans.* E.

A is the Dominant, what is the Tonic? *Ans.* D.

B \flat is 4 of a key. What is the Dominant?

G is the Dominant of a key. What is 7?

C \sharp is 7 of a key. What is the Dominant?

E \flat is the Dominant of a key whose Signature is—?

G \flat changed enharmonically, is 7 of a key whose Dominant is—?

EXERCISE 41. Write a similar series of six questions and answers introducing the Tonic and Dominant.

EXERCISE 42. Look over a number of piano-pieces and find examples where the last two bass notes of the piece are 5-1.

If we consider the Tonic as the central point of the key, the notes of the scale above and below it may be written as follows:



The fifth note above the Tonic is the *Dominant*, that is, 5 of the scale (in C, the note G).

The fifth note below the Tonic is the *Subdominant* (lower Dominant), that is, 4 of the scale (in C, the note F).

Midway between the Tonic and the Dominant is the *Mediant*, that is, 3 of the scale (in C, the note E).

Midway between the Tonic and the Subdominant is the *Submediant*, that is, 6 of the scale (in C, the note A).

The note above the Tonic is the *Supertonic*, that is, 2 of the scale (in C, the note D).

The note below the Tonic is the most sensitive note in the key. It leads most frequently to the Tonic and is called the *Leading-Tone*. It is 7 of the scale (in C, the note B).

To summarize:

The first scale-degree is the Tonic.

The second scale-degree is the Supertonic.

The third scale-degree is the Mediant.

The fourth scale-degree is the Subdominant.

The fifth scale-degree is the Dominant.

The sixth scale-degree is the Submediant.

The seventh scale-degree is the Leading-Tone.

It may be expressed as follows:



The most usual scale-degrees to be spoken of by *name* are the Tonic, Dominant, Subdominant and Leading-tone. The following questions are designed to familiarize the student with the names of these four important degrees.

EXERCISE 43. What is the Subdominant of F? (B_b.) This note is the Dominant of ? (E_b.) Change it enharmonically. (D[#].) It is now 3 of—? (B.) Whose signature is—? *Answer:* Five sharps.

The Subdominant of E_b changed enharmonically is 3 of what key?

The Subdominant of C is 2 of what key?

3 of E_b is the Subdominant of a key whose signature is—?

EXERCISE 44. Write six similar chain-questions and answers introducing the Subdominant.

EXERCISE 45. What is the Leading-tone of B? B is the Leading-tone of what key?

A certain key has the signature two sharps. What is its Leading-tone? This note is 3 of what key? This is the Dominant of what key? This is the Leading-tone of—? *Answer:* E_b.

A is the Leading-tone of a key whose signature is—?

3 of the key of two flats is the Leading-tone of a certain key; what is the Dominant?

A is the Tonic of what key? A is the Dominant of what key? A is the Leading-tone of what key? A is the Subdominant of what key?

G is the Leading-tone of a certain key; change this note enharmonically. It is now 3 of a key whose signature is—?

EXERCISE 46. Write six similar chain-questions and answers introducing the Leading-tone.

CHAPTER FOUR

Notation of Time-Values

$\frac{2}{4}$, $\frac{3}{4}$, $\frac{4}{4}$ METER

Time-values are expressed by notes, rests and dots.

The unit in $\frac{2}{4}$, $\frac{3}{4}$ and $\frac{4}{4}$ meter is the quarter-note or the quarter-rest.

The *note*-values are:

= Quarter-note.

= Half-note.

= Whole note.

or = Eighth-notes.
 or = Sixteenth-notes,etc

The *rest*-values are:

= Quarter-rest.

= Half-rest.

= Whole rest.

= Eighth-rest.

= Sixteenth-rest,etc.

The "whole rest" is also a *whole-measure rest* and fills a measure of *any* length: $\frac{3}{8}$, $\frac{4}{8}$, $\frac{12}{8}$, etc.

The *dot* has a *relative* value only. It is equal to half the value of the note or rest after which it is placed. That is, it is of the denomination next smaller than the preceding note or rest.

- $\textcircled{0}\cdot$ = Whole-note and half-dot ().
- $\textcircled{1}\cdot$ = Half-note and quarter-dot ().
- $\textcircled{2}\cdot$ = Half-rest and quarter-dot ().
- $\textcircled{3}\cdot$ = Quarter-note and eighth-dot ().
- $\textcircled{4}\cdot$ = Quarter-rest and eighth-dot ().
- $\textcircled{5}\cdot$ = Eighth-note and sixteenth-dot ().
- $\textcircled{6}\cdot$ = Eighth-rest and sixteenth-dot ().
- $\textcircled{7}\cdot$ = Quarter-note, eighth-dot and sixteenth-dot ().

And so on, applied to notes or rests of the smallest denominations.

A dot may be placed after a *dot*, as in the last example above. This is called a "double-dot"—the second dot having half the value of the first.

Some of the endless combinations of time-values in $\frac{2}{4}$ meter are:



In all of the above examples, each of the two beats is divided simply in halves, or in quarters, or in some combination of these, .

In describing the time-values in the above examples in $\frac{2}{4}$ meter, the following formula can be used. The meter is $\frac{2}{4}$. First measure: *one* is a quarter-note, *two* is a quarter-note. Second measure: *one* is a quarter-note, *two* is two eighth-notes. Fourth measure: *one* is an eighth-note and two sixteenth-notes; *two* is the same. Seventh measure: *one* is an eighth-note and an eighth-rest; *two* is the same.

If the measure is to be described, the formula is: *one* is a quarter-note, *two* is a tied eighth-note and an eighth-note. This measure might also be written In this case, the formula is: *one* is a quarter-note, *two* is an eighth-dot and an eighth-note.

It will be noticed that for clearness the dots are printed in the part of the measure where they occur rhythmically, i. e., $\text{J} \cdot \text{J}$ (instead of J. J) as the dot comes on the second beat. Later in this book the notation follows the usual procedure, the dot being set next to the preceding note.

The measure $\text{J} \cdot \text{J} \quad \text{J}$ would be described: *one* is an eighth-note and half of the quarter-note, *two* is the other half of the quarter-note and an eighth-note.

The measure $\text{J} \cdot \text{J} \quad \text{J}$, would be described thus: *one* is an eighth-note, a sixteenth-dot and a sixteenth-note, *two* is an eighth-note and an eighth-rest. This may seem a complicated mode of speech, but it gives a clearer *arithmetical* conception than speaking of "dotted quarters, dotted eighths," etc., does; and it is more accurate *rhythmically* than counting, for instance, "one-and-two-and," which really is equivalent to counting *four* eighths in the measure.

The time-values in $\frac{3}{4}$ and $\frac{4}{4}$ meter can be tabulated in the same way, by writing the notes and rests and dots in the vertical columns in which they belong.

The image shows a musical staff with two measures. The first measure is in 3/4 time, and the second is in 4/4 time. The notes and rests are arranged in vertical columns to show their rhythmic value in each measure. The notes include quarter notes, eighth notes, sixteenth notes, and sixteenth rests. The rests are represented by vertical dashes. The first measure starts with a quarter note, followed by an eighth note, and then a sixteenth note. The second measure starts with a quarter note, followed by an eighth note, and then a sixteenth note. The notes are grouped into vertical columns based on their value in each measure.

Time-values have *rhythmic* meaning if they are recited aloud in strict rhythm, using some open syllable, such as "ta," for each note.

For example, take the tune "America."

The image shows a musical staff with a treble clef, a key signature of one sharp (F#), and a 3/4 time signature. The melody begins with a quarter note, followed by an eighth note, a quarter note, an eighth note, a quarter note, and an eighth note. The notes are connected by vertical stems.

We would describe the time-values as follows: The meter is $\frac{3}{4}$. First measure: *One* is a quarter-note, *Two* is a quarter-note, *Three* is a quarter-note. Second measure: *One* is a quarter-note, *Two* is an eighth-dot and an eighth-note, *Three* is a quarter-note. Sixth measure: *One* and *Two* are a half-note, *Three* is a quarter-dot. The time-values, recited rhythmically, are:

The image shows a musical staff with a treble clef, a key signature of one sharp (F#), and a 3/4 time signature. The melody consists of quarter notes and eighth notes. After each note, the word "Ta" or "Ta-" is written to indicate the duration of the note. The notes are connected by vertical stems.

The time-values *themselves* may be pronounced in strict rhythm. This method can be used advantageously if the beats are subdivided only into two (or later, three) eighths. Notes are pronounced by speaking the name of the note-value: "Quar-ter," "eighth," etc. Rests and dots are spoken, "rest" or "dot" (not "quarter-rest" or "quarter-dot"), the value being understood. Care must be taken to pronounce the word "quarter" in two short syllables of *equal length*, "quar-ter," and to hold the sound of the word "half" for its *exact length*, i. e., two beats of the duration of quarters, "ha-alf."

For example:

The measures	can be pronounced	
2 4	"Quar-ter, quar-ter, Two-eighths, two-eighths, Quar-ter, two-eighths, Quar-ter, rest, Quar-ter, dot-eighth,	Ha-half" Ha-half" Ha-half" Ha-half" Ha-half"

The time-values of the tune "America" would be pronounced:

"Quar-ter, quar-ter, quar-ter, | Quar-ter, dot-eighth, quar-ter, | Quar-ter, quar-ter, quar-ter, | Quar-ter, dot-eighth, quar-ter, | Quar-ter, quar-ter, quar-ter, | Ha-half-dot." ||

Reciting time-values rhythmically is a great help in reading music. Two things are to be considered in reading; (1) the reading of the time-values and (2) the reading of the correct notes. Before playing a piece at all, it is an excellent plan to read the time-values straight through, away from the piano, using one of the above methods. This gives a comprehensive idea of the piece as a whole.

A much clearer idea of a piece is gained by playing even wrong notes in the right rhythm, than by playing the right notes in the wrong rhythm. For example, play each of the following and see which sounds most like "Swanee River."

The image shows two staves of musical notation. Both staves begin with a G clef and a 4/4 time signature. The top staff consists of a series of eighth notes. The bottom staff also consists of eighth notes, but some are grouped together by vertical stems or horizontal bar lines, indicating different rhythmic groupings or interpretations of the same notes as in Exercise 47.

EXERCISE 47. Describe the time-values in each of the following examples, being careful to say the words "note," "rest" or "dot" after each value. Then recite the time-values in strict rhythm, using syllable "ta." Each example is a phrase of two measures, always ending with a note which fills the second measure completely.

The image displays a list of 11 numbered examples of musical phrases. Each example is a two-measure phrase in 2/4 time. The first measure of each example is numbered 1 through 11. The second measure is indicated by a vertical line followed by a double bar line. The examples show various combinations of quarter notes, eighth notes, sixteenth notes, and rests.

EXERCISE 48. Write ten examples of time-values in $\frac{2}{4}$ meter, ten examples in $\frac{3}{4}$ meter, and ten examples in $\frac{4}{4}$ meter. Space very evenly, so that the notes, rests and dots come exactly in their proper columns.

EXERCISE 49. Describe the time-values of each of the examples that you have written, then recite them rhythmically, using syllable "ta."

EXERCISE 50. Recite rhythmically as described above the time-values themselves of the melodies on Pages 11, 12 and 14.

CHAPTER FIVE

Phrasing

MORE DIFFICULT MELODIES TO BE ANALYZED

The melodies in CHAPTER II were all made of phrases of equal length, and the rhythmic design was the same throughout each melody. Frequently, however, different rhythmic designs occur even in very simple melodies. Take, for example, the following folk-tune:

This melody begins with the rhythmic design *One-Two-Three*, but in the second measure this changes to *Three-One-Two*; this latter rhythm continues through the entire melody. It would be phrased as follows:

A similar example is the melody of the Schubert B minor Minuet, which, if phrased as follows, is also a mixture of Three-One-Two and One-Two-Three.



An excellent example of rhythmic contrasts between the different sections of a piece, is the familiar C major Spanish Dance of Moszkowski. It is in $\frac{3}{8}$ meter, with an eighth-note as the unit of the beat. The first melody begins with the rhythmic design One-Two-Three; in the first measure, the three is tied over to the one of the second measure.



The second melody has the rhythmic design Three-One-Two throughout.



And the third melody has the rhythmic design Two-Three-One.



Yet how frequently we hear this piece played as though it were counted One-Two-Three from beginning to end.

The rhythmic design of the melodies in CHAPTER II always began with a quarter-note. Very frequently, however, the rhythmic design begins on the half-beat, that is (in $\frac{2}{4}$ or $\frac{3}{4}$ or $\frac{4}{4}$ meter), with an eighth-note. Example:



This would be described as a rhythmic design beginning on the last half of two and ending on the first half of two.

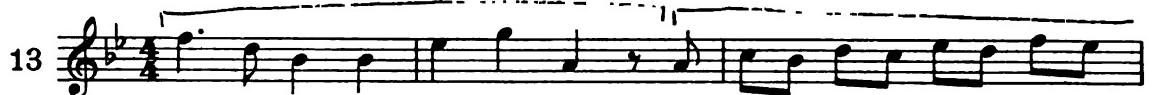
The following melodies are further illustrations of this sort of grouping.



EXERCISE 51. Analyze the following melodies. In some of them the rhythmic design always commences on the half-beat. In others the rhythmic design changes during the course of the melody, and in some the phrases are of irregular length. Study the form of each and indicate the phrasing. Mark the large groups first, and then the smaller ones, but avoid making such small subdivisions that the sense of the melody as a *whole* is lost. Memorize each melody.



The image shows ten staves of musical notation, numbered 7 through 16 from top to bottom. Each staff begins with a treble clef and a key signature of two sharps. The time signature varies by staff: measures 7-10 are in common time (indicated by a '4'), measure 11 is in 3/4 time, and measures 12-16 are in 2/4 time. The music consists primarily of eighth-note patterns, with some sixteenth-note figures and occasional quarter notes. Measure 10 features a dynamic instruction 'p' (piano). Measures 12-16 include a melodic line with eighth-note pairs and sixteenth-note patterns.





CHAPTER SIX

Review

MAJOR SCALES AND SIGNATURES

1. G is 2 of a Major scale. What is 6? *Answer: D.*
2. B \flat is 4 of a Major scale. What is 1? *Answer: F.*
3. A is 5 of a Major scale. What is 3? *Answer: F \sharp .*
4. E \flat is 4 of a Major scale. What is 2?
5. D is 1 of a Major scale. What is 5?
6. D is 2 of a Major scale. What is 4?
7. D is 3 of a Major scale. What is 7?
8. D is 4 of a Major scale. What is 2?
9. D is 5 of a Major scale. What is 3?
10. D is 6 of a Major scale. What is 1?
11. D is 7 of a Major scale. What is 4?

1. C is the Dominant of what key?
2. What is the Dominant of C?
3. B \flat is 4. What is the Tonic?
4. A is 4. What is the Dominant?
5. G is the Dominant. What is 3?
6. G is 3. What is the Dominant?
7. A \flat is the Dominant. What is the Tonic?
8. G is the Tonic. What is the Dominant?
9. 3 of F is the Dominant of what key?
10. The Dominant of A is 3 of what key?
11. A is the Tonic. What is the Subdominant?
12. A is the Subdominant. What is the Tonic?
13. B \flat is the Subdominant. What is the Dominant?
14. G is the Leading-tone. What is the Tonic?
15. G is the Tonic. What is the Leading-tone?
16. G is the Dominant. What is the Leading-tone?
17. G is the Subdominant. What is the Leading-tone?
18. B \flat is 6. What is the Leading-tone?

1. What Major key has the Signature 3#? a^{b}
2. What Major key has the Signature 4b? a^{b}
3. What Major key has the Signature 2#? d
4. What Major key has the Signature 3b? e^{b}
5. What Major key has the Signature 5#? f^{c}
6. What Major key has the Signature 5b? d^{b}
7. What Major key has the Signature 2b? f^{b}
8. What is the signature of D? of E? of Eb? of C? of Db? of A? of Ab?
of G? of Gb? $2\text{b} \quad 4\sharp \quad 3\text{b} \quad \dots \quad 5\text{b} \quad 3\sharp \quad 4\sharp \quad 4\text{b}$
 $1\text{tr} \quad 6\text{b}$

1. Start on A. Three of that is 7 of a key whose signature is? a^{b}
2. Start on B. 5 of that is 3 of a key whose Dominant is? d^{b}
3. Start on C. 2 of that is 7 of what key? e^{b}

1. A whole tone above Gb is—? a^{b}
2. A Chromatic half-step below D is—? d^{b}
3. A Diatonic half-step above A is—? f^{b}
4. 3 of A changed enharmonically is 5 of what? g^{b}
5. The Dominant of Bb changed enharmonically is 7 of what? g^{b}
6. A is 7 of a certain key. Change this note enharmonically and it is 3 of what key? f^{b}
7. What is a Chromatic half-step above G? Change it enharmonically. What is the Diatonic half-step up? a^{b}

1. Start on G. 3 of that (B), is 5 of (E), is 2 of (D), is 7 of (Eb). Change enharmonically (D#), is 3 of the key of (B) whose Signature is? Answer: Five sharps.
2. Start on F. 4 of that changed enharmonically, is 7 of? 6 of that is 3 of? Which is the Dominant of? a^{b}
3. Start on A. This is 5 of? Which is 3 of a key whose Signature is? d^{b}
4. Write a set of ten similar questions and answers on Major Scales and Signatures.

TIME-VALUES

1. Finish putting in the bars in Example 1, and write all bars in the other examples.

1 $\frac{3}{4}$

2 $\frac{2}{4}$

3 $\frac{4}{4}$

4 $\frac{3}{4}$

2. Describe the time-values in each measure of the above.

3. Complete the time-values in each of the following measures, using either notes, rests or dots:

4. Describe the time-values of the following examples:

PHRASING

Study the following melodies:

1. Study form.
2. State Signature and Key.
3. State Meter and Rhythmic Design.
4. Describe Time-Values, and recite them rhythmically.
5. Draw plan of phrase-lengths.
6. Memorize.
7. Write from memory in a different key.
8. State time consumed in studying each melody.

2

3

4

5

6

7

8

A musical score consisting of two staves of music. The top staff begins with measure 9 in common time (indicated by a '4' over a '4') and a key signature of one sharp (F#). The music consists of eighth-note patterns. Measure 9 ends with a double bar line and repeat dots above it. Measure 10 begins with a single bar line and continues the eighth-note patterns. The bottom staff begins with measure 10 in common time and a key signature of one sharp. It also features eighth-note patterns, continuing from where the top staff left off. Measure 10 ends with a double bar line and repeat dots above it.

PART TWO

CHAPTER SEVEN

Notation of Time-Values in Other Meters

$\frac{2}{2}$ $\frac{3}{2}$ — $\frac{3}{8}$ $\frac{4}{8}$ — $\frac{6}{8}$ $\frac{9}{8}$ $\frac{12}{8}$ — $\frac{6}{4}$

In CHAPTER IV the time-values in $\frac{2}{4}$, $\frac{3}{4}$ and $\frac{4}{4}$ meter were studied, the unit in each case being a quarter-note or rest. We shall now discuss time-values where the unit is a half-note or rest.

The meter-sign $\frac{2}{2}$ means that there are two pulses in the measure, each pulse being equal to a half-note or half-rest.

The sign $\frac{3}{2}$ indicates a measure of three pulses, each equal to a half-note or half-rest.

In very early notation (sixteenth century) music in triple rhythm was indicated with the sign of a circle O. This was called "Tempus Perfectum," taking its name from the Three Persons of the Trinity. Music that was not in triple rhythm was indicated with a broken circle C. This was called "Tempus Imperfectum."

In modern times, the sign C is used to indicate $\frac{4}{4}$ meter; and the sign C to indicate $\frac{2}{2}$ meter. This latter is also called "alla breve," Brevis being the old name for a "short" note $\frac{1}{2}$ or $\frac{1}{3}$ the length of the Longa ("long" note).

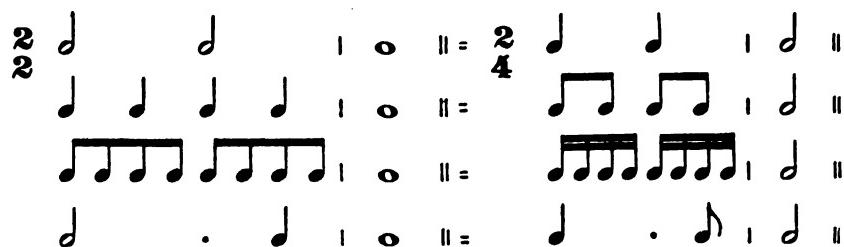
Some of the combinations of time-values in $\frac{2}{2}$ (or C) meter are:

1.				O	
2.					O
3.					O
4.		.		O	
5.				O	
6.				O	

These time-values would be described thus:

Two-two meter. First example: One is a half-note, Two is a half-note, One and Two are a whole note. Fourth example: One is a half-note, Two is a quarter-dot and a quarter-note. Sixth example: One and Two are a whole-measure rest; etc.

These measures correspond *relatively* to measures with the quarter-note unit, as follows:



Some of the divisions in $\frac{3}{2}$ meter are:



EXERCISE 52. Describe the time-values in each of the following melodies, and recite the time-values rhythmically, using syllable "ta."

EXERCISE 53. Mark phrasing and memorize each melody. Draw plan of phrase-lengths.

The page contains ten numbered examples of musical notation, each on a single staff. The notation uses various note heads and stems to represent different time values. The meters and key signatures vary across the examples.

- Example 4:** Treble clef, 2/2 time, mostly eighth notes with some sixteenth-note patterns.
- Example 5:** Treble clef, 2/2 time, mostly eighth notes with some sixteenth-note patterns.
- Example 6:** Treble clef, 2/2 time, mostly eighth notes with some sixteenth-note patterns.
- Example 7:** Treble clef, 2/2 time, mostly eighth notes with some sixteenth-note patterns.
- Example 8:** Treble clef, 2/2 time, mostly eighth notes with some sixteenth-note patterns.
- Example 9:** Treble clef, 2/2 time, mostly eighth notes with some sixteenth-note patterns.
- Example 10:** Treble clef, 2/2 time, mostly eighth notes with some sixteenth-note patterns.
- Example 11:** Treble clef, 2/2 time, mostly eighth notes with some sixteenth-note patterns.
- Example 12:** Treble clef, 2/2 time, mostly eighth notes with some sixteenth-note patterns.
- Example 13:** Treble clef, 2/2 time, mostly eighth notes with some sixteenth-note patterns.

The image shows four staves of musical notation. The first three staves are in common time (indicated by a 'C') and the fourth is in 2/4 time (indicated by a '2'). The notation consists of eighth notes and sixteenth notes. Measure lines and bar lines are present, along with some slurs and grace notes.

The eighth-note is also used as the unit of the beat. Meters of $\frac{3}{8}$ and $\frac{4}{8}$ occur (seldom $\frac{5}{8}$). The beats are evenly divided, as in meters of quarters. The two columns of $\frac{3}{8}$ meter and $\frac{3}{4}$ meter below are relatively alike:

The image displays two columns of musical notation. The left column is labeled '1' above and '8' below, representing $\frac{3}{8}$ meter. The right column is labeled '1' above and '4' below, representing $\frac{3}{4}$ meter. Both columns show measures consisting of three eighth notes each, with vertical bar lines dividing them into groups of two and one. The notation includes vertical stems and horizontal beams connecting notes.

EXERCISE 54. Describe the time-values in each of the following melodies, and recite the time-values rhythmically.

EXERCISE 55. Mark phrasing and memorize the melodies. Draw plan of phrase-lengths.

The image contains four staves of musical notation, numbered 1 through 4. Staves 1 and 2 are in common time (C), while staves 3 and 4 are in 2/4 time (2). The notation includes eighth and sixteenth notes, with measure lines and bar lines indicating the rhythm. Stave 1 has a melodic line with a slur over the second measure. Stave 2 has a melodic line with a slur over the third measure. Stave 3 has a melodic line with a slur over the first measure. Stave 4 has a melodic line with a slur over the second measure.

All of the meters studied so far are called *Simple Meters*, as the beats are divided into halves, quarters, etc.

We now come to *Compound Meters*, where the beat is divided into *three* parts. The meter-signs are $\frac{6}{8}$, $\frac{9}{8}$ and $\frac{12}{8}$, and the unit of beat is a "dotted quarter-note" $\text{♩}.$ and can be so called, as it here represents one complete beat.

For example, take the following measure written in two different meters, although the time-values are the same in both:



In the $\frac{3}{4}$ meter version, the dot represents the first half of the second beat; in the $\frac{6}{8}$ meter version, however, where each beat includes three eighths, the dot is part of the beat itself. Therefore in the first example we would speak of a "quarter-note and an eighth-dot." In the second example we would speak of a "dotted quarter-note." That is, $\frac{6}{8}$ meter usually represents two beats of three eighths each, and *not* usually six beats of eighths. The meter-sign might be written, $\frac{6}{8} = 2 \text{♩}.$ In the same way, $\frac{9}{8} = 3 \text{♩}.$ and $\frac{12}{8} = 4 \text{♩}.$

Some of the usual subdivisions in $\frac{6}{8}$ meter are:



These values would be described:

First example: *One* is three eighth-notes, *Two* is three eighth-notes, *One* and *Two* are two tied dotted quarter-notes, or a dotted half-note. Fourth example: *One* is an eighth-note, a sixteenth-dot, a sixteenth-note and an eighth-note, *Two* is the same; etc. The rhythmical design is on the basis of two beats to the measure; all of the above have the rhythmical design *One-Two*.

The time-values in $\frac{6}{8}$ meter (exclusive of sixteenths) can *themselves* be recited rhythmically. In the above illustration they are as follows:

Example 1, Three-ee-eighths, three-ee-eighths, | Quar-ter-dot, quar-ter-dot (or, Ha-a-alf-dot).

Example 2, | Quar-ter-eighth, quar-ter-eighth, | quar-ter-dot, quar-ter-dot (or, Ha-a-alf-dot).

A very usual grouping in $\frac{6}{8}$ meter begins on the sixth eighth-note as follows:

$\text{♪, ♪, ♪, ♪, ♪, ♪, } \parallel$ The rhythmic design would be described as beginning on the last third of *Two* and ending on the second third of *Two*; (counting each eighth, it begins on the sixth eighth, and ends on the fifth).

Recited rhythmically, the time-values are: Eighth-quar-ter, eighth-quar-ter.

EXERCISE 56. Describe time-values in the following melodies, and recite time-values rhythmically, using syllable "ta." In the first five melodies, recite the time-values *themselves*.

EXERCISE 57. Phrase and memorize melodies. Draw plan of phrase-lengths.

The page contains eight musical examples, numbered 4 through 7, illustrating time-value notation in different meters. Each example consists of two staves of music in common time (indicated by a 'C').

- Example 4:** Shows eighth-note patterns. The first measure has a single eighth note. Subsequent measures show pairs of eighth notes, followed by groups of three, four, and five eighth notes.
- Example 5:** Shows eighth-note patterns. Measures 1-3 feature eighth-note pairs. Measure 4 shows a group of four eighth notes followed by a group of three eighth notes.
- Example 6:** Shows eighth-note patterns. Measures 1-3 feature eighth-note pairs. Measures 4-5 show groups of three eighth notes.
- Example 7:** Shows eighth-note patterns. Measures 1-3 feature eighth-note pairs. Measures 4-5 show groups of three eighth notes.

The image displays eight staves of music, numbered 8 through 15 from top to bottom. Each staff is in common time (indicated by a 'C') unless otherwise specified. The staves illustrate various time signatures and note values:

- Staff 8: Measures 1-3 are in 8/8 time. Measures 4-5 are in 6/8 time.
- Staff 9: Measures 1-2 are in 8/8 time. Measures 3-4 are in 6/8 time.
- Staff 10: Measures 1-2 are in 8/8 time. Measures 3-4 are in 6/8 time.
- Staff 11: Measures 1-2 are in 8/8 time. Measures 3-4 are in 6/8 time.
- Staff 12: Measures 1-2 are in 8/8 time. Measures 3-4 are in 6/8 time.
- Staff 13: Measures 1-2 are in 8/8 time. Measures 3-4 are in 6/8 time.
- Staff 14: Measures 1-2 are in 8/8 time. Measures 3-4 are in 6/8 time.
- Staff 15: Measures 1-2 are in 8/8 time. Measures 3-4 are in 6/8 time.

The notation includes various note heads (solid black, open, and stems), rests, and bar lines. Measure numbers are placed above the staves at the beginning of each measure.

If a beat in any meter with the quarter as unit (that is, in $\frac{2}{4}$, $\frac{3}{4}$ or $\frac{4}{4}$ meter) is divided into *three* parts, the beat is called a *triplet* and the notes are written as follows:

etc.; three eighths marked with a figure 3, or a 3 and a bracket, to show that the beat, instead of being divided simply in halves, is divided into three parts: $\frac{2}{4}$

In meters of halves (that is, in $\frac{2}{2}$ and $\frac{3}{2}$ meter) the triplet consists of three quarters, as follows:

In simple meters of eighths (that is, in $\frac{3}{8}$ and $\frac{4}{8}$ meter) the triplet consists of three sixteenths, as follows:

In each case the triplet consists of three notes of the denomination that is used when the beat is divided in half. That is:

EXERCISE 58. Describe the time-values in the following melodies and recite the values rhythmically, using syllable "ta."

EXERCISE 59. Phrase and memorize these melodies:

Sometimes music in *slow tempo* is written with beats of six or nine or twelve eighths to the measure. The grouping of the notes is usually in triplets; that is, in $\frac{6}{8}$ meter, the rhythmic design will be *One-two-three, four-five-six* not *One-two, three-four, five-six*. Music with six beats in the measure is also written in $\frac{6}{4}$ meter.

Examples of $\frac{6}{8}$, $\frac{9}{8}$ and $\frac{12}{8}$ meter where each eighth is a beat, and of $\frac{6}{4}$ meter, are given below.

Largo e mesto



Adagio



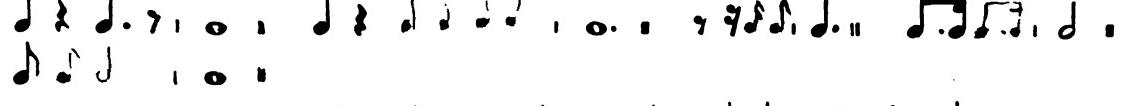
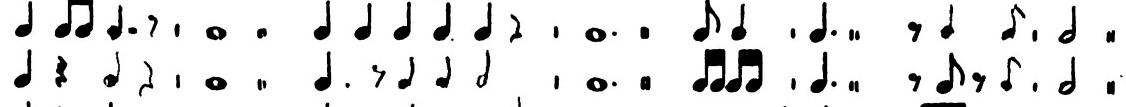
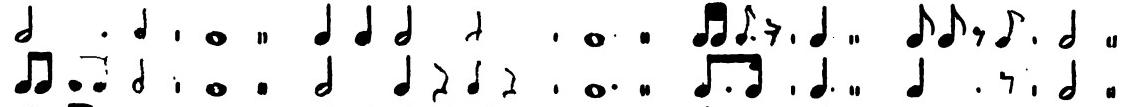
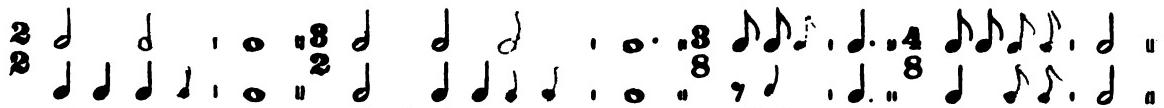
Largo



Etwas langsam



EXERCISE 60. Copy and complete the first measure of each of the following examples, using notes, rests or dots:





EXERCISE 61. Write four examples of each of the following meters:

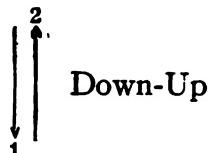
$\frac{2}{4} \frac{3}{4} \frac{4}{4} \frac{6}{4} \frac{2}{2} \frac{3}{2} \frac{3}{8} \frac{4}{8} \frac{6}{8} \frac{9}{8} \frac{12}{8}$

Which of the above meters are simple and which are compound?

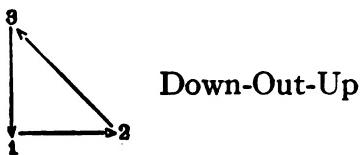
The question will be asked, "What is the difference between writing a piece in $\frac{2}{2}$ or in $\frac{4}{4}$ meter, when they are alike arithmetically?"

The answer is that it is a matter of the *number* and *speed* of the *beats* that gives the rhythmic impression, not the number or speed of *notes* in the measure. "Swanee River," for example, *feels* very different if it is played with two slow beats to the measure, instead of four moderately fast beats, even when the speed of its *notes* is the same. We can use as illustration the motions that a leader makes in conducting an orchestra.

If the music has two beats to the measure, his "beat" is:



Three in the measure is:



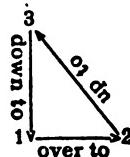
Four in the measure is:



Each of these indicates, of course, a rhythmic design beginning on the first beat of the measure. In $\frac{3}{4}$ meter, for example, if the rhythmic design is Three-One-Two, the pattern of the conductor's beat will be Up-Down-Out, because this beat coincides with these numbers.

In every case the beat *begins* when the baton is at the number itself. For example, in $\frac{3}{4}$ meter the first beat (commonly called the down-beat) *begins* when

the baton is at the lowest point, and carries over to 2. The second beat *begins* at 2 and carries up to 3. The third beat begins at 3 and carries down to 1 again.



For example, the beats in "America" come as follows:



As we have said, it makes a great deal of difference rhythmically whether a piece is played with two slow beats or four quick ones to the measure. This is true, even if the speed of the *notes* themselves is the same.

To prove this, sing each of the following melodies, and swing the rhythm as in $\frac{2}{2}$ meter with two beats to the measure—"Down-Up," one for each half-note. Then sing each melody again in $\frac{4}{4}$ meter and swing four to the measure—"Down-In-Out-Up." Notice the difference in rhythmic feeling between the two versions. Even if the speed of the *notes* is the same, the second way (in $\frac{4}{4}$ meter) will feel the faster, as our impression of speed comes from the rapidity of the *beats*, rather than from the rapidity of the notes themselves.

Another interesting rhythmic point is, that the ear refuses to accept as a *beat* an extremely slow or extremely fast speed.

Take as example the Mendelssohn "Wedding March" quoted above (b). If it is played very fast (Metronome $\text{♩}=200$), the ear refuses to hear four separate beats of quarters, and substitutes a rhythm of two in the measure (Metronome $\text{♩}=100$). This can be proved by playing the melody at different speeds while some one walks around the room in time with the playing. If the tune is played at a moderate speed (Metronome about $\text{♩}=120$), the walker will probably step four times to the measure, indicating a rhythmic impression of $\frac{4}{4}$ meter. If a gradual *accelerando* is made, the steps will become faster and faster, until the walker is forced to drop back into two steps to the measure, indicating a rhythmic impression of $\frac{2}{2}$ meter. If the tune is played at this $\frac{2}{2}$ speed, and gradually played slower and slower, the walker will come to the point where these steps are too slow to be recognized as single beats, and he will put in four steps to the measure again.

It is necessary, before playing a piece, to decide the number of beats and the rhythmic design. This is especially true in ensemble playing. Often when two people are playing together, it is easy to hear that, though they are playing at the same speed, each has a different rhythmic conception.

For example, if a violinist and a pianist are playing together the tune beginning:



and one of them means the rhythmic design $\frac{2}{2}$ Two-One, and the other means the rhythmic design $\frac{4}{4}$ Three-Four-One-Two, it will sound as though they were playing two different pieces—which, indeed, they are.

In the same way, in playing a piece like Schumann's "Reaper's Song," beginning:



it sounds quite differently if we feel and count two in the measure, one for each group of three eighths, or six in the measure, one for each eighth-note.

Composers frequently do not write in the meters in which the music is to be played, as they rely on the intuition of the performer to feel the rhythm through the spirit of the music itself. For example, many slow pieces in $\frac{4}{4}$ meter are played with four beats to the measure, that is, as though the meter-sign were $\frac{4}{8}$ (example, the slow movement of Beethoven's "Sonate Pathétique"), and many fast pieces in $\frac{3}{4}$ meter are played with one beat to the measure (example, Scherzo of Beethoven's Third Symphony).

Many Critical Editions of the works of the masters exist, where the editors have tried to "improve" the notation, so that the printed page shall *look* more as the music *sounds*. Notable among these is Riemann's Edition of Bach, where even the bars are often changed, to conform more clearly with the rhythmic groupings. Both Riemann and Germer have edited the Beethoven Sonatas, and phrased them most carefully and minutely, in the endeavor to indicate by the manner of printing as much of the musical meaning as possible. There are very many works of this kind which well repay careful study. It is most necessary, however, that the student shall realize that he is an interpreter of the *spirit* of the music he plays, and that he shall not acquire a purely pedagogical and critical interest in the way that musical ideas are put on paper. For it is the *idea* that is the matter of supreme importance and interest.

CHAPTER EIGHT

Intervals in the Major Scale

An *Interval* is the distance between two tones or notes.

Intervals are measured according to the major scale of the lower of these notes. That is, any interval whose lower note is D, is measured by the scale of D major. The interval itself, however, may occur in any key that contains the note D.

For example:  occurs in the keys of C, F, E \flat and B \flat , but in each case would be measured along the line of D major, as D is the lower note.

The number-name of an interval is found by counting the staff-degrees from the lower to the upper note, both included.



The smallest interval is the Unison, or Prime: 

The largest interval in common use is the Ninth: 

Later, in studying Harmony, we shall find intervals of a Tenth, Eleventh, Thirteenth, etc. At present we shall include only the Ninth. Intervals larger than the Ninth are named as though they were within the compass of an octave; that is, from C up to *any* E is called a Third, from A up to *any* F is called a Sixth, etc.



The interval from C up to D *in the same octave* is always a Second: The interval from C up to D *in different octaves* is sometimes a Second and sometimes a Ninth: 

Chromatic signs do not affect the *number-names* of intervals. Each of the following is a Sixth, because six scale-degrees are included:



EXERCISE 62. What are the number-names of the following intervals?



An interval is *Major* when the upper note is found in the major scale of the lower note.



is major because F# belongs to the major scale of D.



is *not* major because B does *not* belong to the major scale of F.

EXERCISE 63. Which of the following intervals are major, and why?

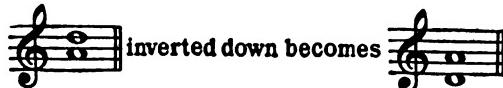


Some major intervals are called Perfect, as explained later.

An interval is *inverted up* when the lower note is placed above the upper one:



An interval is *inverted down* when the upper note is placed below the lower one:



The number-name of each interval, and that of its inversion within the octave, add up to 9.

A Second inverted becomes a Seventh.

A Third inverted becomes a Sixth.

A Fourth inverted becomes a Fifth.

A Fifth inverted becomes a Fourth.

A Sixth inverted becomes a Third, etc.



In reciting intervals it is well to state whether the second note is above or below the first one. For instance, G *up* to C is a Fourth; but G *down* to C is a Fifth.

EXERCISE 64. Give the number-name of each interval in Exercise 63, then invert each interval either up or down; and give the number-name of the inversion. Use the formula "G up to B \flat is a Third"; "B \flat up to G is a Sixth," etc.

If *after inversion*, the upper note is in the scale of the lower note, the interval is called *Perfect*.



are both perfect.  is in D major, but the inversion



is *not* in F# major, therefore neither interval is perfect.

EXERCISE 65. Which of the following intervals are perfect?

The following are the intervals in the scale of C, from the first scale-degree to each of the others, within the octave:

The *perfect* intervals are the Prime, Fourth, Fifth and Octave. The *major* intervals are the Second, Third, Sixth and Seventh. Hereafter, Primes, Fourths, Fifths, and Octaves will *not* be called major.

EXERCISE 66. Name the perfect and major intervals above each of the following notes: D, E \flat , G, A \flat , B \flat .

Use the formula: D to D is a perfect Prime.
 D up to G is a perfect Fourth.
 D up to A is a perfect Fifth.
 D up to D is a perfect Octave.
 D up to E is a major Second.
 D up to F \sharp is a major Third.
 D up to B is a major Sixth.
 D up to C \sharp is a major Seventh.

A *Minor* interval is a half-step smaller than a major interval. Any major interval may be made minor, either by lowering the upper note a half-step, or by raising the lower note a half-step.

G up to A is a major Second; so either G up to A \flat , or G \sharp up to A, is a minor Second.

A \flat up to C is a major Third; so either A \flat up to C \flat , or A up to C, is a minor Third.

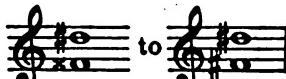
F \sharp up to D \sharp is a major Sixth; so either F \sharp up to D, or F \flat up to D \sharp , is a minor Sixth.

B \flat up to A is a major Seventh; so either B \flat up to A \flat , or B up to A, is a minor Seventh.

EXERCISE 67. Change each of the following major intervals to minor, either by lowering the upper note, or by raising the lower note, a half-step. The letter-names must remain the same. That is, G up to B is a major Third; so G up to B \flat (not G up to A \sharp) is a minor Third:

In the following example, the lower note of some of the intervals is *not* the keynote of a major scale, as, for example:

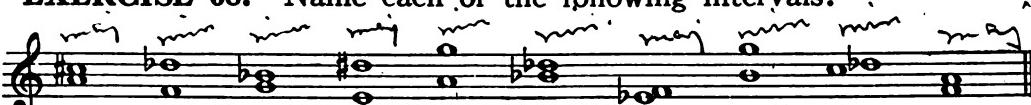
To determine the name of such an interval, move the lower note a half-step down; that is, change  to . This latter interval is a major Third;

so G \sharp up to B must be a minor Third. In the same way, we must change  to . This latter interval is a major Sixth; so, F \times up to D \sharp must be a minor Sixth.

Sometimes *both* notes must be shifted up or down before the interval appears in a familiar key. For example:  is easy to recognize as a major Third, if we think of it as the *same* interval as 

Similarly,  is the same interval as 

EXERCISE 68. Name each of the following intervals:



If a major interval is *inverted*, it becomes a minor interval.

Example:  becomes 

If a minor interval is *inverted*, it becomes a major interval.

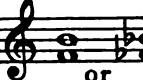
Example:  becomes 

EXERCISE 69. Copy each of the following intervals and write the inversion of each. Name each interval and its inversion:



If a perfect interval is made a half-step larger, it becomes an *Augmented* interval. If a perfect interval is made a half-step smaller, it becomes a *Diminished* interval.

The most common augmented interval is the augmented Fourth; and the most common diminished interval is the diminished Fifth:

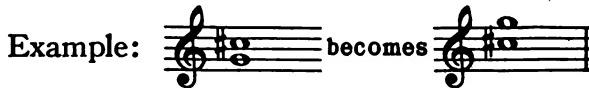
 is a perfect Fourth;  is an augmented Fourth.
or

 is a perfect Fifth;  is a diminished Fifth.
or

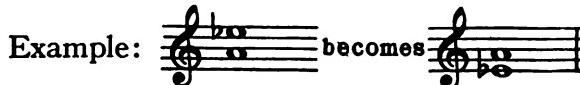
EXERCISE 70. Change each perfect Fourth to an augmented Fourth, and each perfect Fifth to a diminished Fifth:



If an augmented interval is *inverted*, it becomes a diminished interval.



If a diminished interval is *inverted*, it becomes an augmented interval.



To summarize:

A major interval is the distance from the keynote of a major scale up to the second, third, sixth and seventh step of that scale.

A perfect interval is the distance from the keynote of a major scale to the first, fourth, fifth or eighth step of that scale.

A minor interval is a half-step smaller than a major interval.

An augmented interval is a half-step larger than a perfect interval.

A diminished interval is a half-step smaller than a perfect interval.

There are still other augmented and diminished intervals, which will be studied later. We have studied the following intervals:

Perfect Primes.

Major and Minor Seconds.

Major and Minor Thirds.

Perfect and Augmented Fourths.

Perfect and Diminished Fifths.

Major and Minor Sixths.

Major and Minor Sevenths.

Perfect Octaves.

All of these intervals occur within the major scale.

The following is a complete list of *all* the intervals in the major scale. The scale of C major is taken as illustration, but the intervals are the same, of course, in all scales:

PRIMES

All Primes are perfect.

SECONDS

Major Seconds come between 1-2, 2-3, 4-5, 5-6, 6-7.

Minor Seconds come between 3-4 and 7-1.

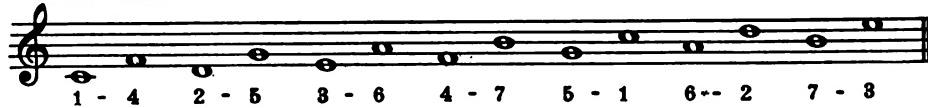
THIRDS



Major Thirds come between 1-3, 4-6 and 5-7.

Minor Thirds come between 2-4, 3-5, 6-1 and 7-2.

FOURTHS



All fourths are perfect, except that which comes between 4-7, which is an augmented Fourth.

FIFTHS



All fifths are perfect, except that which comes between 7-4, which is a diminished Fifth.

SIXTHS



Major Sixths come between 1-6, 2-7, 4-2 and 5-3.

Minor Sixths come between 3-1, 6-4 and 7-5.

SEVENTHS



Major Sevenths come between 1-7 and 4-3.

Minor Sevenths come between 2-1, 3-2, 5-4, 6-5 and 7-6.

OCTAVES



All Octaves are perfect.

It will be noticed that there is a relationship between the pairs of intervals within the scale that add up to *nine*; that is, between the Primes and Octaves, between the Seconds and Sevenths, etc.

To summarize:

1. All Primes and all Octaves are perfect.
2. Minor Seconds come between 3-4 and 7-1, all other seconds being major; therefore:
Major Sevenths (the inversions of minor Seconds) come between 4-3 and 1-7 (the inversions of the above numbers), all other Sevenths being minor.

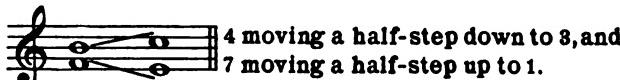
3. Major Thirds come between 1-3, 4-6 and 5-7, all other thirds being minor; therefore:

Minor Sixths (the inversions of major Thirds) come between 3-1, 6-4 and 7-5 (the inversions of the above numbers), all other Sixths being major.

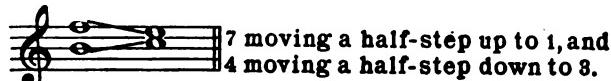
4. All Fourths and all Fifths are perfect except the augmented Fourth which comes between 4-7, and the diminished Fifth which comes between 7-4 (the inversion of 4-7).

All notes and intervals and chords express either *rest* or *motion*, and we can recognize them by this characteristic. The tone which expresses complete rest is the Tonic, 1 of the key. The other notes of the Tonic chord, 3 and 5, also express rest, but in a lesser degree. The reason for this will be discussed later in the Chapter on Overtones. The two most sensitive intervals in the key, that is, the intervals which express the greatest degree of motion, are the augmented Fourth and the diminished Fifth. The tones of these intervals have a strong tendency to move to the nearest tones of the Tonic chord. This movement of a tone towards a point of rest is called its *Resolution*.

An augmented interval usually resolves to an interval *larger* than itself. The augmented Fourth usually resolves as follows:



A diminished interval usually resolves to an interval *smaller* than itself. The diminished Fifth usually resolves as follows:



EXERCISE 71. Copy and resolve each of the following augmented Fourths and diminished Fifths. Mark the key of each, and draw lines to show the direction of the resolution of the tones as in the first example:



EXERCISE 72. Write *all* the intervals in the keys of D and of B \flat . That is, write the seven Primes, seven Seconds, seven Thirds, etc., that occur in each key. Do not use signatures; put sharps or flats before the individual notes as they are required.

EXERCISE 73.

1. Write all the major Seconds in the key of A major.
2. Write all the minor Seconds in the key of E \flat major.
3. Write all the major Thirds in the key of E major.
4. Write all the minor Thirds in the key of C major.
5. Write all the perfect Fourths in the key of D major.
6. Write the augmented Fourth in the key of G major.
7. Write all the perfect Fifths in the key of A major.
8. Write the diminished Fifth in the key of D \flat major.
9. Write all the major Sixths in the key of A \flat major.
10. Write all the minor Sixths in the key of B \flat major.
11. Write all the major Sevenths in the key of F major.
12. Write all the minor Sevenths in the key of E \flat major.

EXERCISE 74. Write five examples of each of the following intervals: perfect Prime, minor Third, major Seventh, minor Sixth, Major second.

EXERCISE 75. Write the inversion of each of the intervals in the last exercise, and name each inversion.

The augmented Fourth and the diminished Fifth can each belong to one key only. That is, the augmented Fourth can belong only to the key in which its numbers are 4 and 7. The diminished Fifth can belong only to the key in which its numbers are 7 and 4. All the other intervals, however, can belong to a number of keys.

Minor Seconds occur between 3-4 and between 7-1. So, for example, the minor Second, E up to F, is 3-4 in the key of C, and is also 7-1 in the key of F.

EXERCISE 76. In what two keys does each of the following minor Seconds occur? Give the numbers of the scale-degrees in each key, as in the first example:

G:3 - 4
C:7 - 1

Major Thirds can belong to three keys. For example: C up to E is 1-3 in the key of C, and is 4-6 in the key of G, and is 5-7 in the key of F.

EXERCISE 77. In what three keys does each of the following major Thirds belong? Mark as in first example:

D:1-3
A:4-6
G:5-7

EXERCISE 78. To what two keys does each of the following major Sevenths belong? Mark as in first example:

F: 1-7
C: 4-3

EXERCISE 79. To what five keys does each of the following major Seconds belong? Mark as in first example:

F: 1 - 2
E: 2 - 3
C: 4 - 5
B: 5 - 6
A: 6 - 7

If the tones of an interval are heard in succession, the interval is *melodic*. If they are heard simultaneously, the interval is *harmonic*.

EXERCISE 80. Name the melodic intervals between each two tones of the following melody. Use the formula:

- E up to C# is a major Sixth.
- C# down to B is a major Second.
- B down to A is a major Second.
- A down to G# is a minor Second.
- G# to G# is a perfect Prime, etc.

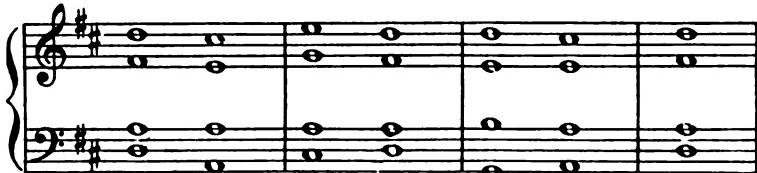


EXERCISE 81. Name the intervals in the following melody.



EXERCISE 82. Name the harmonic intervals between the lowest note and each of the other notes in the following chords. Use the formula:

- D up to A is a perfect Fifth.
- D up to F♯ is a major Third.
- D up to D is a perfect Octave.
- A up to A is a perfect Octave, etc.



EXERCISE 83.

1. A perfect Fifth above D is a major Second above—?
2. A major Third above B♭ is the Dominant of—?
3. A perfect Fourth below D is a major Third above—?
4. A perfect Fifth below G is 7 of a key whose signature is—?

EXERCISE 84.

1. Start on C; the Dominant of that (G), a major Third down (E♭), change enharmonically (D♯), a diatonic half-step up (E), a major Sixth up (C♯), is 7 of a key (D), whose Dominant is—? *Answer: A.*
2. Start on B♭; change enharmonically, a major Third down, a perfect Fourth up, a major Second down, a major Third down, a major Sixth up, is 7 of what key?
3. Start on G; a perfect Fourth up, a major Third down, change enharmonically, a major Sixth down, is 7 of a key whose Subdominant is—?
4. Start on D; a major Third down, a major Second up, a perfect Fourth down, a minor Sixth up, changed enharmonically is the Leading-tone of—?

EXERCISE 85. Write six similar chain-questions on scales, signatures, and intervals. It is well to write the answer to *each step*, as in the first question in the previous exercise. Put six items in each chain-question.

Intervals are classified according to their *sound* as follows:

1. Perfect Consonances.
2. Imperfect Consonances.
3. Dissonances.

The *Perfect Consonances* have a smooth, "hollow" sound. They are the perfect intervals, that is, the perfect Primes, Fourths, Fifths and Octaves.

EXERCISE 86. Play the following perfect consonances very softly and deliberately, and listen to the *quality* of the sound. Listen also to the distance between the tones; that is, listen to the *size* of the interval, and be able to recognize them by ear, and to tell the name of each (perfect Fourth, perfect Fifth, etc.) when it is played.



In greatest contrast to the perfect consonances are the *Dissonances*, which will be studied next in order.

The dissonances have none of the quality of smoothness. They are the harshest of the intervals, and they always demand a resolution. The dissonances are the major and minor Seconds, the major and minor Sevenths, and all augmented and diminished intervals. We will study first the Seconds and Sevenths. The *size* is very easy to recognize by ear. Minor Seconds are the next smallest to the Unisons, and can so be recognized. The other Seconds are major.

Major Sevenths are within a half-step of the Octaves and can so be recognized. The other Sevenths are minor.

EXERCISE 87. Play the following dissonances softly and slowly, and listen to the quality of the sound, and to the size of the intervals. Be able to name each interval by ear.



On the piano, the sound and size of the augmented Fourth and the diminished Fifth are identical. That is, the augmented Fourth, G up to C#, is identical in sound with the diminished Fifth, G up to D♭. It is only when these intervals are resolved that we can classify them by ear. As has been said, the augmented Fourth resolves to a *larger* interval, and the diminished Fifth resolves to a *smaller* interval.

EXERCISE 88. Name the following augmented Fourths and diminished Fifths by ear (that is, when they are played), by noticing their resolutions.



EXERCISE 89. Name the following intervals by ear. Decide first whether the interval is a perfect consonance or a dissonance, and then decide which consonance or dissonance it is.



The other intervals are *Imperfect Consonances*. These intervals are not as smooth as the perfect consonances nor as harsh as the dissonances.

The imperfect consonances are the major and minor Thirds and the major and minor Sixths. Major Thirds are easy to recognize as 1-3 of a major Scale. The smaller Third is, of course, minor. Major and minor Sixths are more difficult to distinguish. It is sometimes helpful, in determining these Sixths, to imagine the upper tone as a half-tone higher than it sounds. For example, if the given

interval is think how it would sound if it were This latter interval is a dissonance (minor Seventh), so the interval in question must be the *larger* of the two possible Sixths; therefore, we know it is a major Sixth.

If the interval to be determined is and we "think" the tone of the upper note a half-step higher we still have a consonance, so the interval in question must be the *smaller* of the two Sixths. and we know it to be a minor Sixth.

EXERCISE 90. Name the following imperfect consonances by ear:



In a major key the augmented Fourth resolves to a minor Sixth. The diminished Fifth resolves to a major Third.

EXERCISE 91. Name each of the following pairs of intervals by ear:



In the following Exercise, all the intervals that we have studied are used. Think first of the *general* classification, whether perfect consonance, imperfect consonance, or dissonance. Then determine the *Number-Name*; and last of all decide the *kind* of interval, whether major, minor, etc.

EXERCISE 92. Name the following intervals by ear:



CHAPTER NINE

Overtones and Sympathetic Vibration

Sound is caused by waves of air which are set in motion by some vibrating body.

In the human voice, the vibrating bodies are the vocal cords.

In wood-wind or brass instruments, the vibrating bodies are reeds, or the lips of the performer.

In the piano and in other string instruments, the vibrating bodies are the strings.

The four principal parts of the action that produces tone on the piano are:

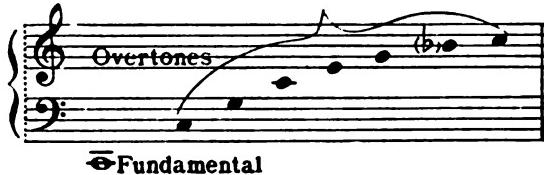
1. Keys.
2. Dampers.
3. Hammers.
4. Strings.

While the key is being depressed, the damper, which has been touching the string, rises so as to allow the string room to vibrate. The action of the key forces the hammer to strike the string, and the string vibrates and produces the tone.

The shorter the string is, the more rapid are the vibrations, and the higher is the pitch. The highest C on the piano is produced by a set of three short strings, each vibrating 4096 times a second. The longest string on the piano vibrates 26 times a second and produces the tone of the lowest A. "Middle C" vibrates 256 times a second.

Every musical tone is a "mixture" made up of a *fundamental* tone and its *overtones* sounding together.

For example: if this C  on the piano is struck, it produces not only the tone of its own pitch, but also a number of higher tones called, variously, "overtones" or "harmonics" or "upper partials." These overtones are:



That is, this entire series of tones is sounding at the same time that the low C itself sounds.

The reason of this is, that the string which is producing the low C has the power of dividing itself, so that its two halves shall vibrate, as though they were separate strings half the length of the string itself, and each half produces a tone, while the fundamental vibration is going on.

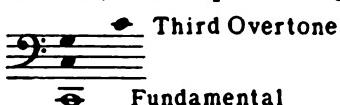
Each of these halves is vibrating twice as fast as the entire string; and each half is producing a tone at the pitch of an octave higher than the fundamental. This is the first overtone.



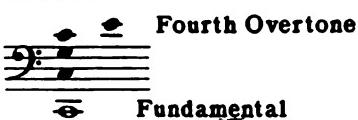
The string is also dividing itself into three parts, each of which is vibrating three times as fast as the fundamental, and is producing the second overtone.



The string is also dividing itself into four parts, each of which is vibrating four times as fast as the fundamental, and is producing the third overtone.



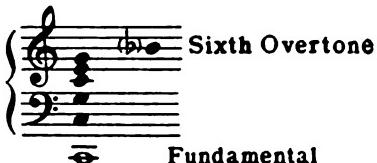
Also into five parts, each vibrating five times as fast as the fundamental, and each producing the fourth overtone.



Also into six parts, each vibrating six times as fast as the fundamental, and each producing the fifth overtone.



Also into seven parts, each vibrating seven times as fast as the fundamental, and each producing (faintly) the sixth overtone.



And into eight parts, each vibrating eight times as fast as the fundamental, and each producing the seventh overtone.



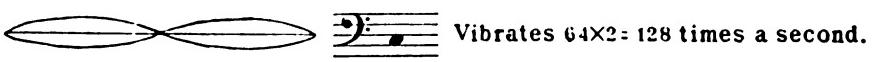
There are still higher overtones, produced by still smaller subdivisions of the string, but they are too faint to be easily heard.

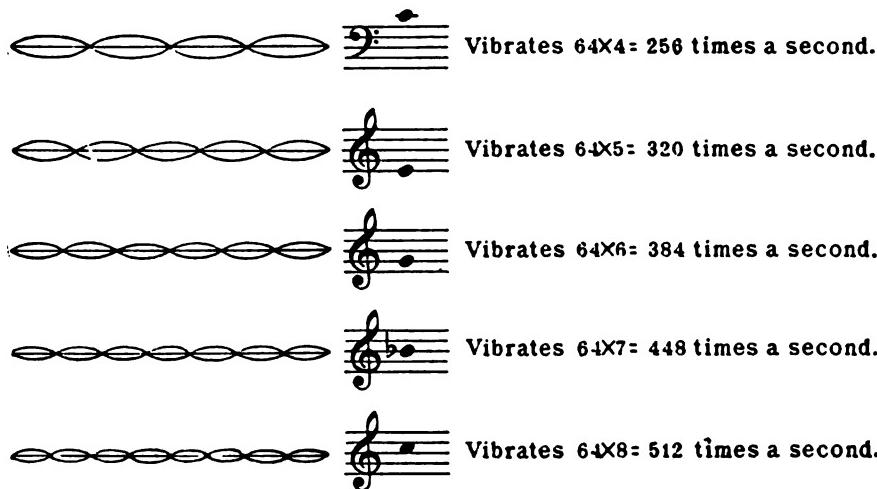
This series of tones is the natural scale, the "Scale of Nature." That is, *any* vibrating body, not necessarily a musical instrument, that produces a fundamental tone is also producing overtones.

Overtones have a great deal to do with the *character* of tones. For example,

the tone of the pitch is produced by the same *number* of vibrations a second, when played on a flute, or a violin, or a piano, etc. But the predominance of the different *overtones* varies in these instruments, and this gives the tone a different *timbre* or *quality* in each case.

The following diagram shows the vibration of the whole string, and the partial vibrations that produce the overtones.





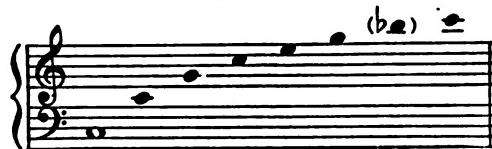
It will be noticed that the tones produced by the fundamental C, are all C, E and G (with a faint B \flat). In other words, every fundamental produces the tones which we call its Chord. The tone G will produce the overtones G-B-D.



The tone B \flat will produce B \flat -D-F.

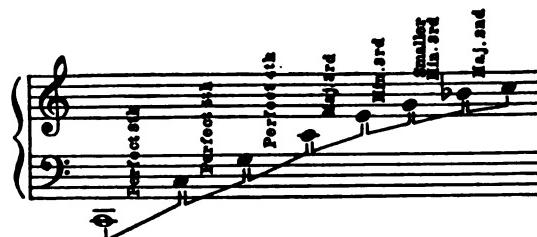


If the C an octave above the low C is taken as fundamental, the overtones will be produced in the same relationship, but each an octave higher than before.



For example:  can be produced as overtone of  but not of  which produces the E an octave higher.

It will be noticed that the distance between each two tones of the harmonic series is smaller as we go higher in the series.



That is:

- From the fundamental to the first overtone is a perfect Octave.
- From the first overtone to the second is a perfect Fifth.
- From the second overtone to the third is a perfect Fourth.
- From the third overtone to the fourth is a major Third.
- From the fourth overtone to the fifth is a minor Third.
- From the fifth overtone to the sixth is a minor Third.
- From the sixth overtone to the seventh is a major Second.

The minor Third between the fifth and sixth overtones, G and B flat, is in reality smaller than the minor Third between the fourth and fifth overtones, E and G; although this difference is impossible to demonstrate on the piano, on account of the method of tuning.

It will also be noticed that the fundamental or *Root*, C, occurs four times, the fifth, G, occurs twice, and the third, E, but once.

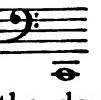
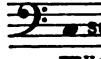
We shall find later in studying chords, that the tones of the chords are strong in just the proportion in which they appear as overtones. The root is the strongest, the fifth next strong, and the third is the weakest of all.

SYMPATHETIC VIBRATION

A vibrating string, or *part* of a vibrating string, has the power of setting in motion any other string, or part of a string, which vibrates at exactly the same rate of speed as itself.

We have found that the first overtone of low C vibrates at the rate of 128 times a second, and produces a tone at the pitch of 

The string which *itself* produces this tone  can set the first overtone of the low C into *sympathetic vibration*, without sounding the fundamental low C at all.

Press down very gently the key  so that the fundamental does not sound. As long as the key is held down, the damper is raised from the string, and the string, or *any part* of it, is free to vibrate. While the low C is held down, strike the key  a short, sharp blow, thus:  In a moment, you will hear the first overtone of the low C sounding clearly, because each half of the lower string has been set in sympathetic vibration by the movement of the upper string, which vibrates at exactly the same rate of speed. Again hold down silently the key of low C, and strike in succession each of the keys corresponding in pitch to the overtones, in the following manner:



and the fundamental will "pick up" the tone of each string. This single long string

is thus producing simultaneously all the tones of the chord, except the fundamental tone itself. The fundamental can be produced only by a blow of the hammer that sets the total length of the string in motion.

EXERCISE 93. Write (using both clefs) the overtones of the following fundamentals:



EXERCISE 94. Press down silently any low key on the piano, and produce the overtones of this fundamental, by striking in turn the keys corresponding to these overtones.

As strings of correspondingly high pitch can, by sympathetic vibration, produce overtones from a low fundamental so also the overtones themselves can, by sympathetic vibration, produce the tones of these higher strings.

Press down silently the key and strike the *low C* a short, sharp blow. In a moment, after the sound of the fundamental has died away, the tone of will be heard, because this string has been set in sympathetic vibration by the two *halves* of the low C, which vibrate at exactly the same rate of speed as itself.

In the same way, press down the key and strike again

the low C. In a moment the tone of will be heard, because the string has been set in motion by the *thirds* of the low C. The strings corresponding to each of the other overtones can be made to vibrate in the same way.

Press down silently the keys corresponding to *all* of the overtones (leaving out B \flat) and get some one to strike the low C a quick blow, and the entire chord will

be heard.



When the Damper Pedal of the piano is pressed down, all the dampers are lifted from the strings, and the strings corresponding to the overtones of any tone that is being played, begin at once to vibrate sympathetically. Strike softly any low key on the piano, then press the damper pedal, and listen for the increase of sound as the overtones set the corresponding strings in vibration.

EXERCISE 95. Hold down each of the following chords in turn, and produce the tones by striking the fundamental of each. Do not use the pedal. In the first three chords, both hands are employed, so some one else must strike the fundamental. In the last three chords, only the four upper overtones are held down (omitting the first and second), so that the student's left hand may be free to strike the fundamental bass notes.

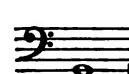
As has been said, the string corresponding to the key can be set into sympathetic vibration by the vibration of the *first* overtone of the string . In this case, each of the two halves of the string is causing the string to vibrate.

This same string can also be set into sympathetic vibration by the vibration of the *second* overtone of the string . In this case, each of the three thirds of the string is causing the string to vibrate.

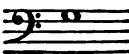
This same string can also be set into sympathetic vibration, by the vibration of the *third* overtone of the string . In this case, each of the four quarters of the string is causing the string to vibrate.

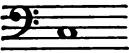
The string can also be made to vibrate sympathetically, by the vibration of the *fourth* overtone of the string . In this case, each of the

five fifths of the string  is causing the string  to vibrate; and so on, using all the fundamentals of which  is an overtone.

EXERCISE 96. Press down the key  gently so as to raise the damper from the string. Strike the key  and listen to the vibration of the string  which will be heard only after the fundamental vibration of  has stopped. When the tone of  has died away, still hold down the key  and produce the tone by striking the key . Still holding down the key  produce the tone by striking in turn .

EXERCISE 97. Ask some one to help in holding down silently all of these keys at once . Strike  and listen to the enormous quantity of tone of that pitch, that is being produced by the vibration of the parts of these lower strings.

 is producing it twice (each of its halves).

 is producing it three times (each of its thirds).

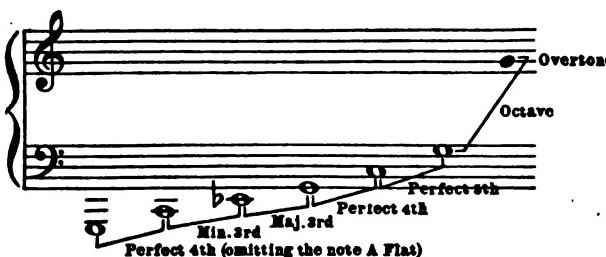
 is producing it four times (each of its fourths); and so on.

It will be noticed that the distance in pitch between each of these fundamentals, is exactly the same in *inverted order*, as is the distance in pitch between the overtones that are produced by a single string. That is, the string 

produces as overtones:

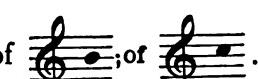


And the overtone  can be produced by each of the fundamentals



EXERCISE 98a. The string  on the piano can be made to vibrate

by the blow of the hammer attached to the key. How else can this string be set in motion? Illustrate on the piano.

EXERCISE 98b. Write the pitch of six fundamentals that can produce the pitch of ; of .

EXERCISE 98c. How many times does the fundamental D produce the 1 of its chord, that is, the tone D? How many times does it produce the 3 of its chord, that is, the tone F#? How many times does it produce the 5 of its chord, that is, the tone A? What has this to do with the study of Harmony?

CHAPTER TEN

Melodic Idioms

IDIOMS FORMED FROM THE TONIC CHORD.

IDIOMS BASED ON TONAL MAGNETISM.

EXERCISES IN RECOGNIZING MELODIC INTERVALS.

IDIOMS FORMED FROM THE TONIC CHORD

The three notes of the tonic chord can be placed in three different positions. The root may be the lowest note, or the third or the fifth may be the lowest

note, as follows: 

These positions are spelt as follows:

The first, or root position, is spelt "C-E-G."

The second position is spelt "C-E-G on E," meaning that E is the lowest note.

The third position is spelt "C-E-G on G," meaning that G is the lowest note.

The chord is written in each case in what is called *Close Position*. That is, the root and third and fifth are placed as close together as possible. The following is *Open Position*, because there is room for an E between C and G; and room for a

C between G and E: 

The notes of each position can form *six* melodic groups, or *Idioms*, by arranging the notes in different order. The following examples show the notes of the first position arranged in these six ways.



1. Straight up, from the lowest note to the highest.



2. Straight down, from the highest note to the lowest.



3. First the lowest note, then the highest, then the middle note.



4. First the highest note, then the lowest, then the middle note.



5. First the middle note, then the highest, then the lowest note.



6. First the middle note, then the lowest, then the highest note.

The notes of the second position form the melodic groups:



The notes of the third position form the melodic groups:



EXERCISE 99. Sing each of the above examples very fluently, using number-names; that is, "One-Three-Five," etc.

Be able to recognize the tones by number when they are played.

EXERCISE 100. Write the Tonic Chords in the keys of F, G and D in all the above groupings. Sing each tone, giving the number-name, *while* you write the note.

There are three positions, each having six melodic shapes, making 18 different examples in each key. Draw lines between the heads of the notes, as in the above examples, showing the shape of each melody.

EXERCISE 101. Sing the following melodic groups fluently, using number-names. Sing One-Three-Five of the key first; then, *think* the pitch of the *entire group* before singing the first tone.



IDIOMS BASED ON TONAL MAGNETISM

It was found in studying overtones that there is a natural mathematical relationship between the tones of the Tonic Chord.

As has been said, the tonic itself, the central point of the key, expresses finality or rest. The tones which are most nearly related to the keynote, that is, 3 and 5, also express rest, though in a lesser degree. Many melodies begin, and most melodies end, on either 1, 3 or 5. Each of the other tones of the scale expresses movement, in varying degrees of intensity, toward the nearest tone of the tonic chord.

In the great majority of melodies the scale-degrees move as follows, especially at the *close* of the melody:

7 frequently moves a half-step up to 1.

4 frequently moves a half-step down to 3.

2 frequently moves either a whole step down to 1, or a whole step up to 3.

6 frequently moves a whole step down to 5.

This power of attraction that the tones of the tonic chord exert over the other scale-degrees, has been called *Tonal Magnetism*.

Some of the most usual melodic idioms involving this fact are:



EXERCISE 102. Sing each of the above groups, using number-names, and also letter-names. Be able to recognize them by number-names, and letter-names, when they are played.

Most melodies to be sung, are written within the compass of an octave and a fourth; that is, from 1 to the octave 1 below, and to 5 below that.

These notes can be represented as a "number ladder," as below:

1
7
6
5
4
3
2
1
7
6
5

Or, written on the staff, in the key of C:



A line under a figure means that the note is below the central 1.

Using the notes within this compass, a number of three-note melodic idioms can be made, involving the progressions given above.

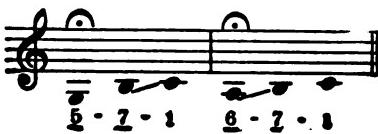
The combination:  is frequently preceded by the other *higher*

scale-degrees, as follows:



as the upper 7 (B), tends to progress to the upper 1 (C).

The same combination is preceded by *lower* scale-degrees as follows:



The combination: can be preceded by upper or lower notes as follows:



The combination: can be used as follows:



These are, of course, only a few of the very many combinations of tones that occur constantly in melodies.

It will be noticed that a melodic group which has a "double curve"

is usually more interesting than one in which the notes progress

in a straight line, even though the numbers are the same.



On the other hand, almost any succession of notes taken from the scale makes an excellent melodic line.



EXERCISE 103. Sing all the above three-note groups (pages 74 and 75), using number- and letter-names. Be able to recognize them by number and letter when they are played.

EXERCISE 104. Write on the staff in the key of G melodic groups formed by using the following endings, preceded by the other scale-degrees:



EXERCISE 105. Sing the groups written in the previous exercise, using number- and letter-names.

EXERCISE 106. Sing each of the following groups, using number-names.
Think the sound of the entire group before singing it. Be sure of the pitch of *One*.

EXERCISE 107. Sing the three tones of the Tonic chord and add one of the following endings: 7-1, 2-1, 2-3, 4-3, 6-5. Sing each example first, with a pause to take breath after the third chord-note, before singing the ending. Then sing the five tones swiftly, without pausing. For example:

Sing then

1 - 3 - 5, 7 - 1 1 - 3 - 5 - 7 - 1

Sing then

1 - 3 - 5, 2 - 1 1 - 3 - 5 - 2 - 1

Sing then

1 - 3 - 5, 2 - 3 1 - 3 - 5 - 2 - 3

and so on, using all five endings. Then sing some other position of the chord, and add the endings to this position. For example:

EXERCISES IN RECOGNIZING MELODIC INTERVALS

The following exercises are designed to give the student additional practice in singing intervals, so that he may be able to recognize them by ear.

EXERCISE 108. Using the notes of the number ladder given previously, sing at some convenient pitch, from each number to each of the others in turn, as shown below. Use number-names. Make a pause  on the last note of each group, and end each section of the exercise with 5-1:

Then start from the note 2, and sing to each of the upper and lower notes in turn,

ending 5-1.

Then sing from 3 to each other note; and so on until all the intervals have been sung.

EXERCISE 109. Sing the following groups, at some convenient pitch. Think the pitch of the entire group straight through before singing, then sing the group fluently. In other words, *do not* sing the first note or two, and then stop to find the next one. The object of this exercise is to learn to think each group *as a whole*, not as so many unrelated notes; just as in language, we think of a group of letters such as "Cat" as *one word*, not as three letters; and we think of a group of words such as "How do you do?" as *one idea*, not as four words.

1-7-1, 1-2-3. 1-3-5, 1-5-3, 3-5-1, 3-1-5, 5-3-1, 5-1-3, 1-3-5-6-5, 1-6-5. 1-3-4-3, 1-4-3. 1-7-1-4-3, 1-7-1-6-5-7-1, 1-5-1, 1-5-6-5-1. 3-2-1-6-5, 5-6-5-7-1. 5-3-2-1, 5-3-2-1, 1-5-3-1, 1-5-6-5-3-2-1, 5-7-1, 5-7-1-2-3, 5-7-1-3-5, 5-7-1-4-3. 1-2-3-4-5, 2-3-4-5-6, 3-4-5-6-7, 4-5-6-7-1. 7-6-5-4-3, 6-5-4-3-2, 5-4-3-2-1.

EXERCISE 110. Write from memory ten melodic idioms of four or five notes each, similar to those given in the last exercise. Write numbers, and *sing* the pitch of each number while you write.

EXERCISE 111. Write on the staff each of the melodic idioms of the last Exercise. Change the keys frequently, and avoid writing too much in the key of C.

EXERCISE 112. Sing the following, using number-names. Think before you sing, and be sure of the pitch of *One*.

The following exercise is useful in developing the sense of tonality. The object is to be able to find at once, by ear, the Tonic chord of a key from any one of its scale-degrees.

For example: Sing the note G, calling it 1, and follow it with its own 1-3-5.

Then call the same G 2, and follow with 1-3-5 of the new key, which will be the key of F.

Then call the same G 3, and follow with 1-3-5 of the key of E flat.

Sing, "Three--- One - three - five"

Then call this G 4. The progression from 4 to 1 is rather awkward, so we will follow 4 by 3, its nearest rest point, and then go to 1-3-5, now in the key of D.

Sing, "Four - three--- One - three - five"

Then call G 5, and go at once to 1-3-5 of C.

Sing, "Five--- One - three - five"

Then call G 6. Go first to the nearest rest point, 5, then to 1-3-5, now in the key of B flat.

Sing, "Six - five--- One - three - five"

Then call G 7, and go to the nearest 1-3-5 up. (Key A flat.)

Sing, "Seven--- One - three - five"

This can be tabulated as follows:

Same pitch	New key
1	1-3-5
2	1-3-5
3	1-3-5
4-3	1-3-5
5	1-3-5
6-5	1-3-5
7	1-3-5

EXERCISE 113. Sing from the above table very slowly and softly. Wait on the note in the first column until you feel the strong *pull* of the Tonic chord.

This exercise can be developed by changing the number-name of 1 or 3 or 5, to a number in a new key, and proceeding at once to the new key.

For example: Sing D as 2, then sing, 1-3-5 (C-E-G). Change the number-name of 5 to 3, and sing 3—1-3-5 (E \flat —G-B \flat). Change number-name of 5 to 4, and sing 4—3—1-3-5 (key of F). Change number-name of 3 to 7, and sing 7—1-3-5 (key of B \flat), etc., as illustrated below.

Sing, "Two—One-three-five. Three—One-three-five. Four-three-- One-three-five. Seven—One-three-five," etc.

CHAPTER ELEVEN

Review

TIME-VALUES:

- 1. Write three examples of each of the following meters:**

$$\begin{array}{ccccccc} 2 & - & 6 & - & 4 & - & 3 & - & 9 & - & 12 \\ 2 & - & 8 & - & 4 & - & 8 & - & 8 & - & 8 \end{array}$$

- 2.** Put bars and meter-signs in the following four-measure phrases:

3. The time-values of familiar melodies are given below. Name each melody:

a. $\frac{3}{4}$ ♩ ♩ ♩, ♩. ♩ ♩ etc. my country 'tis of thee
 b. $\frac{3}{4}$ ♩. ♩, ♩ ♩, ♩ ♩, ♩. ♩, ♩ ♩, ♩ etc. n. 10
 c. $\frac{4}{4}$ ♩ ♩ ♩, ♩ ♩, ♩ ♩, ♩. ♩ ♩, ♩, ♩ ♩, ♩ etc. 100. Sing
 d. $\frac{4}{4}$ ♩ ♩ ♩, ♩ ♩, ♩ ♩, ♩. ♩ ♩, ♩, ♩ ♩, ♩ etc. British March
 e. $\frac{3}{4}$ ♩. ♩, ♩ ♩, ♩, ♩ ♩, ♩, ♩, ♩ etc. Star Spangled

4. Write each of the following examples in time-values of the next smaller denomination:

The image shows four musical examples labeled a, b, c, and d. Each example consists of a time signature (3/4, 3/2, 6/8, or 3/4), followed by a series of eighth and sixteenth note patterns. The notes are connected by vertical stems and horizontal beams.

5. Write each of the following examples in time-values of the next larger denomination:

The image shows three lines of musical notation for 'The Star-Spangled Banner'. Line a) shows a treble clef staff with a 3/8 time signature. Line b) shows a bass clef staff with a 3/4 time signature. Line c) shows a bass clef staff with a 4/8 time signature.

6. Put bars and meter-signs in the following melodies already studied:



7. Complete the following measures:

a	2	
	2	
b	3	
	8	
c	4	
	4	
d	12	
	8	
e	9	
	8	
f	3	
	4	
g	4	

INTERVALS:

1. Name the following intervals:



2. Write and resolve the augmented Fourth in any three keys.
3. Write and resolve the diminished Fifth in any three keys.
4. How many major Seconds occur in the scale of D Major? What are they?
5. How many minor Sixths occur in the scale of E major? What are they?
6. Write an example of each of the following intervals: Major Third, perfect Fifth, major Sixth, minor Seventh.
7. Name the following intervals. Invert each and name the inversion.

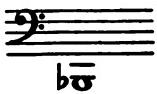


8. A major Second above A is ?
9. A is a major Second above ?
10. B is a perfect Fourth above ?
11. What is a perfect Fourth above B?
12. 3 of the scale of E is a major Sixth above ?
13. A perfect Fifth above Eb, changed enharmonically, is the major Third of ?
14. 7 of C is the Dominant of ?

15. The Dominant of D is a minor Second above a certain note which is 3 of the scale whose signature is—? *D*
16. Start on B. A major Third up, changed enharmonically, is a perfect Fifth above a certain note. *A*^b A perfect Fifth below that is the Dominant of what key? *G*
17. Write the melody of "The Star-Spangled Banner" in the key of B_b. Name each melodic interval.

OVERTONES:

1. How is sound produced?
2. What is a fundamental?
3. What is an overtone?
4. Describe the production of overtones. Illustrate, using D as fundamental.
5. Describe briefly the production of tone on the piano.
6. Describe the action of the damper pedal.
7. What are the synonyms of the word "overtone"?
8. What is sympathetic vibration?
9. Describe the demonstration for producing overtones by sympathetic vibration on the piano.

10. Write the overtones of  and state the distance between each two overtones.

MELODIC IDIOMS:

1. In how many melodic shapes can the following notes be placed?



Describe and illustrate each position.

2. Sing each of the following groups in as many shapes as possible:



3. What is meant by Tonal Magnetism?
4. Which scale-degrees have the quality of rest?
5. Which have the quality of motion? What is a frequent melodic progression of each of these motion tones?
6. What does "resolution" mean?
7. Write six melodic idioms based on Tonal Magnetism.
8. Write the following melodic groups, each in a different key:

1-7-1-6-5-7-1.

7-4-3-1-5-2-1.

3-6-5-1-2-5-1.

5-3-2-1-5-4-3.

PART THREE

CHAPTER TWELVE

Triads in the Major Scale

A *Triad* is a chord composed of three notes—a root, its third, and its fifth. Triads can be built on any scale-degree; for example:



A Roman numeral indicates a chord whose root is that numeral. Example:

I stands for a chord whose root is 1 (that is, 1-3-5).

II stands for a chord whose root is 2 (that is, 2-4-6); and so on through chord VII.

We found in the Chapter on Intervals, that the major scale contained different kinds of thirds, major and minor, and different kinds of fifths, perfect and diminished. We shall now find that the major scale also contains different kinds of Triads. These Triads are named from the *kind* of intervals of which they are composed. Both Major and Minor Triads contain perfect fifths, and take their names from the kind of *third* that they contain.

The Triad on the first degree (I) C-E-G is composed of a root, a *Major* third and a perfect fifth, and is called a *Major Triad*.

The Triad on the second degree (II) D-F-A is composed of a root, a *Minor* third and a perfect fifth, and is called a *Minor Triad*.

The Triad on the third degree (III) E-G-B is *Minor*.

The Triad on the fourth degree (IV) F-A-C is *Major*.

The Triad on the fifth degree (V) G-B-D is *Major*.

The Triad on the sixth degree (VI) A-C-E is *Minor*.

The Triad on the seventh degree (VII) B-D-F is composed of a root, a minor third and a *diminished* fifth, and is called a *Diminished Triad*. The Diminished Triad contains a minor third, but takes its name from the kind of *fifth* that it contains.

To summarize: In the Major Scale, *Major* Triads occur on the first, fourth, and fifth scale-degrees; that is, on the Tonic, Subdominant and Dominant, or, expressed in numbers, on I, IV and V.

Minor Triads occur on the second, third and sixth scale-degrees; that is, on the Supertonic, Mediant and Submediant, or, expressed in numbers, on II, III and VI.

The *Diminished* Triad occurs only on the seventh scale-degree; that is, on the Leading-Tone (VII).

EXERCISE 114. Write all seven Triads in the keys of B \flat , A, E \flat , G, A \flat , B, and mark each Triad either Major, Minor or Diminished. Do not use signatures, but set a sharp or flat before each individual note, as required. Below are the seven Triads of the key of D written in this way:



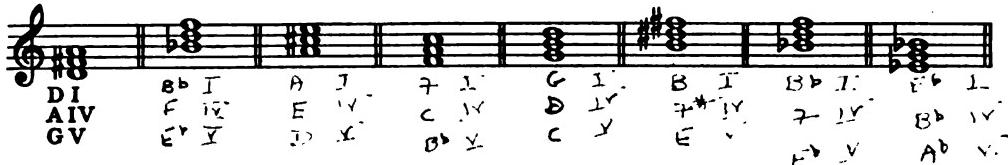
EXERCISE 115. Recite all the Triads in the keys of F, D, D \flat , G, B \flat , naming the *kind* of each Triad, whether Major, Minor or Diminished.

In studying Intervals it was found that each major and minor *Third* belongs to several keys. So also, each major and minor *Triad* belongs to several keys.

Major Triads occur on the first, fourth and fifth degrees of the Major Scale. Therefore, any Major Triad can be I of a Major Scale, and IV of another Major Scale, and V of still another Major Scale. For example, the Triad C-E-G is I of C Major, IV of G Major, and is also V of F Major.

The Triad D-F \sharp -A  is I of D Major, IV of A Major, and V of G Major.

EXERCISE 116. Place each of the following Major Triads in three keys. Mark as in the first example, giving keys and Roman numerals.



EXERCISE 117.

1. Spell the Dominant Triad in D. A C E
2. Spell the Subdominant Triad in B. E G \sharp B
3. G-B-D is the Subdominant Triad. What is the Dominant Triad? A C \sharp E
4. A-C \sharp -E is IV. What is I? E G \sharp B
5. V of G is IV of what key? A
6. In what three keys does the Triad F-A-C occur? F C G

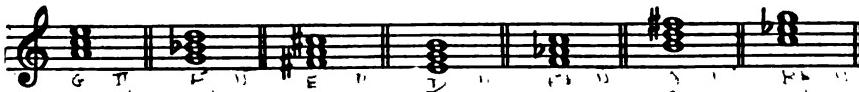
Minor Triads occur on the second, third and sixth scale-degrees. Therefore, any Minor Triad can be II of a Major Scale, or III of another Major Scale and VI

of another Major Scale. For example, the Minor Triad D-F-A  is II of

C II
B \flat III
F VI

C, III of B \flat , and VI of F. The Diminished Triad belongs only to one Major Scale; that is, to the scale where it is VII.

EXERCISE 118. Place each of the following Minor Triads in three keys. Mark as in the foregoing exercise, giving keys and Roman numerals.



Any Major Triad may be made Minor by lowering its third:



Any Minor Triad may be made Major by raising its third:



This change from Major to Minor, or from Minor to Major, is called a change of *Mode*.

EXERCISE 119. Copy the following Triads, then change the Mode of each. Mark as in the above example.



Any Minor Triad may be Diminished by lowering its fifth:



If a Major Triad is to be Diminished, the major third must be lowered to a minor third, and the perfect fifth lowered to a diminished fifth.



EXERCISE 120. Copy the following triads and change each to a Diminished Triad. State the major key to which each Diminished Triad belongs.



CHAPTER THIRTEEN

Tonic and Dominant Triads Used Melodically and Harmonically

Not all of the triads are equally important, or occur with equal frequency in music. By far the most important and frequent are the Tonic and Dominant Triads. The Tonic Triad is composed of 1, 3, 5, and the Dominant of 5, 7, 2. Any chord can appear in three positions; therefore, these two chords can appear as follows:

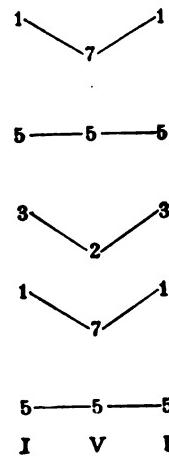


The relative placing of the notes of any chord can be shown clearly by writing the scale-ladder complete, and cancelling with a line all the numbers that do not belong to the chord. The numbers that remain uncancelled will show the placing of the chord-notes in all three positions.

For example, in the first column below, all the numbers of chord I, that is, 1, 3 and 5, are left uncancelled. In the second column, all notes of chord V, that is, 5, 7 and 2, are left uncancelled. The third column is the same as the first.

1	+	1
7	+	7
8	+	8
5	5	5
I	V	I

If spaces are left instead of cancelling the unused numbers, we have:



Written on the staff in the key of C, these notes are:



These examples show the *horizontal* relationship between the notes of the two chords. For example, the note 5 occurs in both chords, and is at the same level in each. The nearest note to 1 horizontally is 7, and the nearest note to 3 is 2.

If the tones of a chord are sung or played one at a time we have a *Broken Chord*. The following, or any other similar arrangements of chord-notes, form broken chords.



Broken-chord melodies can be made from the notes of the Tonic and Dominant triads. Take the upper group of three notes from each column, and sing as a melody, beginning with the upper note of each group. Written on the staff this



The middle group of three notes from each column forms this melody:



And the lowest group forms this melody:



EXERCISE 121. Sing each of the above broken-chord melodies, using number-names. Sing at any convenient pitch.

EXERCISE 122. Play each of the above melodies in the keys of G, F, D, and B_b. Sing the number-name of each note while you play it.

The notes of these same chords can be made into more interesting melodies, by dividing the beats, repeating notes, etc., always keeping the same relative *melodic shape* in each chord.

5—5—5

For example, using the notes  we can make from the first column the

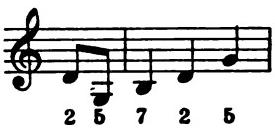
melody  Using the notes of the second column, this

melodic shape is  The third column is the repetition of the first. The tune, then, is complete as follows:



If the first group is  the nearest notes horizontally in the second column are:



If the first group is  the second is 

and so on.

EXERCISE 123. Complete each of the following broken-chord melodies, using the chords I and V. Sing the pitch of each note while you write.

1

2

3

4

5

6

7

EXERCISE 124. Write four original broken-chord melodies of a similar character. Sing the pitch of each note while you write.

These same groups of notes can also be treated *harmonically*. If they are played together, in the key of G, these chords are formed:



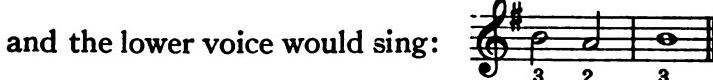
1
7
1

The first group, expressed in figures, is: 5—5—5

3
2
3

The note D contained in both chords is called the *Common Tone*. It occurs in the same relative position in each chord. In the first group, D is the middle note of each chord. In the second group, D is the highest note of each chord. And in the third group, D is the lowest note.

If the first group were sung by three people, the upper voice would sing the



An excellent way of developing the sense of harmony, is to *sing* one voice of a chord-progression, while playing the other voices. This should be done very slowly and softly in order to feel the chord changes. The student must be careful to sing in perfect tune. One of the most frequent causes of singing out of tune is, that the student does not hear his own voice accurately; that is, he does not hear the pitch of what he is singing. The following simple device is of help in focusing the attention on this point. Repeat a short sentence aloud; then close both ears with the finger-tips, repeat the sentence again, and notice how very much louder the voice sounds when the ears are closed. Experiment also by speaking or singing while closing one ear only. If difficulty is experienced in singing in tune in the next two Exercises, practise as follows: Play with the right hand, and close the left ear with the finger-tips of the left hand, while singing as directed. Notice how very easy it is to hear the pitch of what you are singing, and thus to correct faulty intonation.

EXERCISE 125. Play these chords: and while you

play, sing the upper melody, 1-7-1. Then play the chords again, and while you

play, sing the middle melody, 5-5-5. Then play once more, and sing the lower melody, 3-2-3. Do this very softly and deliberately, and be sensitive to the "pull" of the tones. Notice how strong an upward tendency there is from 7 to 1. Notice especially the difference in feeling between 5 in the first chord, where it is the fifth of the chord, and 5 in the second chord, where it is the root of the chord.

After singing these melodies while playing all three voices, practise singing each voice in turn while playing the other two voices. That is, sing:



while playing the two lower voices:



Then sing the middle voice, while playing the outer ones:



Lastly, sing the lower voice, while playing the upper ones



EXERCISE 126.

Practise each of the other groups,



in all the above ways. That is, sing each voice across, while playing the other two voices.

The *names* of the four voices used in vocal music are:

Highest voice, Soprano.

Next lower voice, Alto.

Next lower voice, Tenor.

Lowest voice, Bass.

The Root of each chord may be played in the bass with the three upper voices

as follows:

It will be noticed that in chord I the root C in the bass duplicates C in the soprano; and that in chord V the root G in the bass duplicates G in the alto. This duplication is called *doubling*. It was found in the chapter on Overtones, that the strongest tone of any chord is its root. The root, therefore, is the tone that is most often doubled.

EXERCISE 127. Play the triads I, V, I, connecting them as in the above example. Use four voices, and play in all three positions. Play in the keys of C, G, D, F, B_b.

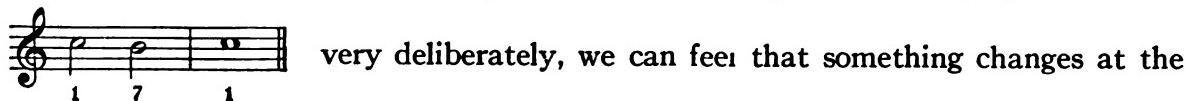
EXERCISE 128. Play these same chords and *sing* the roots. Sing the root-notes an octave higher than they are written, as this brings the tones within the compass of the singing voice. That is, if the bass is  sing it in the upper octave, . Use number-names, "one, five, one," in singing.

EXERCISE 129. Write the triads I, V, I, connecting them in three positions in the keys of G, A, E flat. Use signatures. Place roots in the bass; set the three other voices in close position in the treble. Figure chords with Roman numerals.

EXERCISE 130. Complete each of the following exercises, using the nearest position of the upper voices.



Almost every melody implies *some* harmony. If we play the tune



note B beside the B itself. There are many ways in which this melody can be harmonized, but if we use only the two chords which we have been studying, we would harmonize C with chord I, and B with chord V. If we sing the two nearest broken-chord-tones below each melody-tone, we have, as at the beginning of the



Example A

If the melody is  the notes arranged as

broken chords beneath each melody-note will be:

Example B



EXERCISE 131. Sing this melody as in Example A, above. Then sing it with the underlying harmonies, as in Example B.

EXERCISE 132. Sing each of the following melodies very slowly. Then sing each melody again with the underlying harmonies, as in the last exercise. Use only the tones of the Tonic and Dominant chords.

1 2 3 4
5 6

EXERCISE 133. Sing, as in the previous exercise, the following melodies, which are written in figures instead of on the staff. Sing each melody through slowly, then sing each melody-tone, and the two nearest harmonic tones beneath it.

1 3 | 2 3 | 2 7 | 1 ||
3 1 | 7 1 | 2 7 | 1 ||

EXERCISE 134. Write the harmonization of each of the melodies in the last two Exercises. Use the key of B flat.

It will be noticed that, in many of the above melodies, the Tonic chord or the Dominant chord is used in two positions in succession, as



There has been no difficulty as to the choice of chords, because each melody-note has belonged to only one of the two chords. We have used as melody-notes only 1, 2, 3 and 7.

The melodic note 5, however, can be harmonized as part of chord I



or as part of chord V



The question arises, when to use I, and when to use V.

If the note 5 is repeated in the melody, it is better to harmonize one 5 with I, and



If the melodic interval between any two notes is greater than a second, it is better, when possible, to keep the *same chord* beneath both notes. For example, in

the following,



the skip 5 up to 2, being greater than a second, is

better harmonized with chord V under both notes



than with I

under 5, and V under 2.



In the same way, the melody  would be harmonized with I under 3 and the first 5, not with I under 3 and V under 5.



The harmonic progression is: I, I, V, I, not I, V, I, I.

In the last example  the last two chords sound

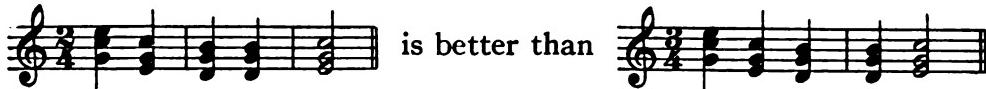
badly, placed as they are, with the bar coming between the repeated I and I. This involves the discussion of rather a difficult subject; that is, the relation of *chord-change to rhythm*.

In the above example the succession of the chords themselves is not wrong. It is this succession of chords in $\frac{3}{4}$ meter, that is wrong. To make this point clear, play the following succession of chords, and decide what the most obvious rhythm of each example is, and where the bars should be placed.



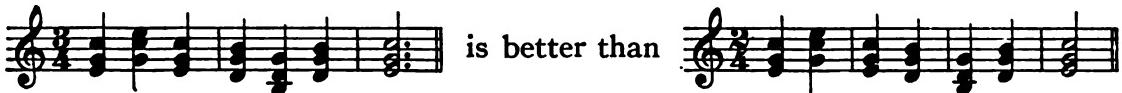
The first example is in $\frac{3}{4}$ time, and the second is in $\frac{4}{4}$ time.

It will be noticed that the harmony (that is, the chord itself, not merely the position) changes every two chords in the first example, and every three chords in the second example. The ear feels this harmonic change, and instinctively supplies a rhythmic pattern that agrees with the chord-change. That is, we feel that the first example is *probably* in $\frac{2}{4}$ meter, though $\frac{3}{4}$ is *possible*.



The first example is better than the second because it creates a more natural rhythmic pattern.

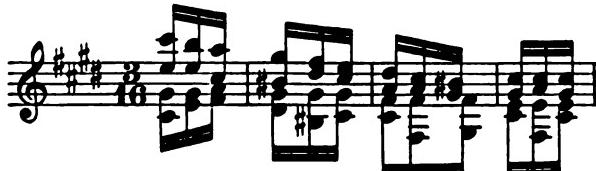
In the same way, the second example is probably in $\frac{3}{4}$ meter, though $\frac{2}{4}$ is possible:



The first example is better than the second because it creates a more natural rhythmic pattern.

We notice, therefore, that the harmony changes on the first beat of the measure; that is, that the new measure begins with a new chord.

We do not mean to say that the first beat of the measure occurs *whenever* there is a new chord. One measure may, of course, contain a number of different chords, as in the following (from Schumann's Symphonic Studies):



The harmonic progression consists of a series of chords changing every beat in $\frac{16}{16}$ time.

Also, one chord may be continued through a number of measures, as in the Prelude to Wagner's opera "Rheingold," where the tonic chord of E \flat is held for 136 measures without change.

But, as a rule, if the chord changes, it does so on the first beat of the measure; because, as has been stated, the ear feels the importance of the change of harmony, and feels instinctively that the new chord probably comes on the important strong beat of the measure. The student can of course find many examples where this does not hold good; but there are so very many more examples where it *does* occur, that it is safe to state it as a generalization.

A chord which continues *during an entire measure*, even though the position of the voices changes, may be continued "over the bar" into the next measure, as

in the following example in $\frac{2}{4}$ meter:

This same succession of chords makes perfectly good sense in $\frac{3}{4}$ meter also, but

the phrase now sounds incomplete:

A chord which is introduced on the *last* beat of a measure is usually *not* repeated over the bar into the next measure. So, this succession of chords, V V I I,

is more intelligible in $\frac{2}{4}$ meter

etc. (because now the change of

chord from V to I comes on the strong beat of the second measure) than in $\frac{3}{4}$ meter, where chord I is introduced on the weak beat of the first measure, and then repeated

over the bar in the second measure,

EXERCISE 135. Put bars in the following examples. Figure each chord.

A musical score for piano, featuring two staves. The top staff uses a treble clef and the bottom staff uses a bass clef. The key signature is one sharp. The score is divided into measures by vertical bar lines. Measure 1 consists of four chords: a major chord (I), a minor chord (II), another minor chord (II), and a major chord (V). Measure 2 consists of four chords: a minor chord (II), a major chord (V), a minor chord (VI), and a major chord (V). Measure 3 consists of four chords: a major chord (I), a minor chord (II), a minor chord (VI), and a major chord (V). Below each note in the bass staff, Roman numerals I, II, V, or VI are written, corresponding to the chords above them.

EXERCISE 136. Write the harmonization of the following melodies, as in the first two examples below. Observe the following rules:

1. If melody moves by an interval greater than a second, repeat the same chord.
 2. If melody-note repeats, change the chord.
 3. Change the chord on the first beat of each measure.
 4. Sing the tone of each note while you write it.

A musical score for "The Star-Spangled Banner" arranged for six voices. The score consists of six staves, each with a treble clef and a key signature of one sharp (F#). Staff 1 (Soprano) starts with a forte dynamic. Staff 2 (Alto) begins with a forte dynamic. Staff 3 (Tenor) starts with a forte dynamic. Staff 4 (Bass) starts with a forte dynamic. Staff 5 (Cello) starts with a forte dynamic. Staff 6 (Double Bass) starts with a forte dynamic.

EXERCISE 137. Sing each of the above melodies, and the broken chords beneath each note.

Cadence means close or ending. The word "cadence" comes from a word meaning "fall," and was first applied to the fall of the voice at the end of a sentence. The ending V I is called the *Authentic Cadence*. A Cadence is called *Perfect* when the root of the Tonic chord is in the Soprano. If the Third or the Fifth of the Tonic chord is in the Soprano, the Cadence is called *Imperfect*.

Perfect Authentic Cadence

A musical staff in G major (treble clef) shows a perfect authentic cadence. The progression is V (G7 chord) followed by I (C major chord). The bass line moves from E to C.

Imperfect Authentic Cadences

A musical staff in G major (treble clef) shows three imperfect authentic cadences. The first example is V (G7) followed by I (C major). The second example is V (G7) followed by I (C major), then V (G7) again. The third example is V (G7) followed by I (C major).

EXERCISE 138. Play the Perfect Authentic Cadence in all keys from C to F Sharp, and from G flat to C. Use the same fingering for all keys; that is, finger all keys as the key of C is fingered below. Play through the entire series of keys in perfect rhythm, going from one key to the next without stopping.

etc.

EXERCISE 139. Play each of the Imperfect Authentic Cadences in all keys from C to F sharp, and from G flat to C, in the same manner as explained in the previous Exercise.

EXERCISE 140. Play only the right-hand part of the Perfect Authentic Cadence, and sing the root letters instead of playing them with the left hand. That is, while you are playing the three upper voices, sing the root letters an octave higher than they are played by the left hand. Example:

CHAPTER FOURTEEN

Dominant Seventh-Chord

Next in frequency to the Tonic and Dominant Triads we find another chord whose root is also the Dominant.

This chord is formed by adding the interval of a *Seventh* to the Dominant Triad, as follows: The Dominant Triad is a major triad, and the added seventh is a minor seventh.

Major triads, we found, can belong to three major keys. The Dominant Seventh-chord, however, can belong to one key only; that is, it can belong only to the key of which it is the Dominant. For example, in the key of C, the Dominant Seventh is composed of the notes G-B-D-F. As the B is a natural, the chord cannot belong to any flat key, because B flat, not B natural, occurs in all the flat scales. And, as the F is a natural, this chord cannot belong to any sharp key, because F sharp, not F natural, occurs in all the sharp scales. This chord therefore belongs only to the key which it *dominates*. It contains the characteristic diminished fifth from 7 up to 4 which was discussed in the chapter on Intervals.

This chord is called the *Dominant Seventh-chord* not because it contains the leading-tone (7 of the scale), but because it contains the interval of a *seventh* above its root, the dominant.

Care must be taken to distinguish between the various uses of figures in musical terminology.

To review: Figures indicate three different things.

1. A single figure, such as 5, refers to a *melody-note*—in the key of C, the



2. A Roman numeral, such as V, refers to a *chord* whose root is that number—in the key of C, the chord V: 

3. The number-name of an *interval* is also expressed by a figure. The 5th of the above chord is the fifth note above its root. This fifth, however, is the note D, which is the second degree of the scale of C. So, the 7th of the Dominant Seventh (or V₇th chord) in the key of C is the note F, which is the 4th degree of the scale of C.

Seventh-chords can be formed on all scale-degrees by adding a seventh to

each triad . The V₇ is much the most important, and is the only one that will be studied now.

Seventh-chords are composed of four different notes. The spelling conforms to the formula of letters already given; that is, C-E-G-B-D-F-A. There are seven possible four-letter combinations, each beginning on the last letter of the previous group. They are:

C-E-G-B
B-D-F-A
A-C-E-G
G-B-D-F
F-A-C-E
E-G-B-D
D-F-A-C

EXERCISE 141. Spell fluently from memory the above four-letter combinations.

EXERCISE 142. Write the V₇ chord, as in the example given below, in all major keys. Do not use signature.



EXERCISE 143. Spell aloud the V₇ chord in each major key, being careful to put in the correct sharps or flats.

When the V₇ chord is connected with the Tonic triad, it is easier to resolve the V₇ chord if one of its four notes is omitted, so as to have only three notes to use in conjunction with the three notes of the Tonic triad. The note that is best omitted is the fifth of the chord, that is, 2 of the scale.



The root, G, cannot be omitted, because it is the fundamental tone of the chord. The third, B, cannot be omitted, because it is one of the characteristic motion notes of the Dominant chord. The seventh, F, cannot be omitted, because without it the chord is a simple Dominant Triad.

The figures of the Dominant Seventh-chord in three positions can be arranged in a vertical column, as the triads were treated in the last chapter. The fifth of the chord (2 of the scale) has been omitted.

7

5

4

7

5

V₇

Written on the staff in the key of C the notes are:



EXERCISE 144. Practise singing all the intervals in the above column. Sing, from each number, to each of the others in turn.

EXERCISE 145.

What is the interval from 5 up to 7?

3rd
7

What is the interval from 5 up to 4?

7
4th

What is the interval from 7 down to 4?

4th
"

What is the interval from 4 down to 5?

"

The interval of a major second occurs between what two numbers?

7 + 4

The interval of a diminished fifth occurs between what two numbers?

7 + 4

The interval of an augmented fourth occurs between what two numbers?

4 + 7

EXERCISE 146. Sing each position of the chord in six melodic shapes, as follows:

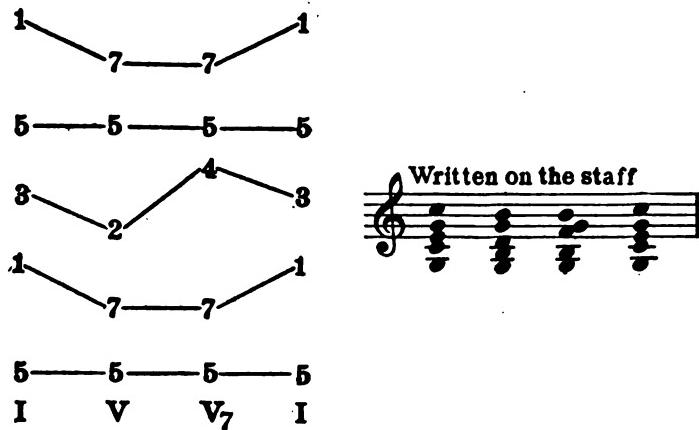
Upper group

Middle group

Lower group

On account of the very sensitive interval between 7 and 4, this chord is much more strongly attracted than the Dominant Triad towards the Tonic. The Dominant Seventh-chord is frequently used to precede the Tonic at the end of a phrase or sentence, and establishes the feeling of movement towards the point of rest. A phrase will seldom end on the Dominant Seventh-chord, but will often end, as we shall find in writing couplets of phrases, on the Dominant *Triad*.

The column of figures of the Dominant Seventh arranged in conjunction with those of the two triads already studied is as follows:



The V₇ chord can be introduced in broken-chord melodies. The upper groups of three notes form the melody:



The middle groups form the melody: The lower groups form the melody:



The lower groups form the melody:



EXERCISE 147. Sing the above broken-chord melodies from memory, using number-names.

EXERCISE 148. Write the above broken-chord melodies from memory in the keys of D, B flat, G, F, A, E flat and F sharp.

The V₇ chord, if introduced in the broken-chord exercise given in the last chapter, is as follows:



EXERCISE 149. Complete each of the following broken-chord exercises, using chords I-V-V₇-I. Use table at top of page, and sing pitch of each note while you write.

A musical staff with a treble clef and a common time signature. The staff is divided into two sections: section 1 (measures 1-4) and section 2 (measures 5-8). The melody consists of groups of three notes, with note values indicated below the staff. The key signature is G major (one sharp).

The first staff (measures 3 and 4) consists of two measures in common time (indicated by a 'C'). Measure 3 starts with a quarter note followed by eighth-note pairs. Measure 4 starts with a half note followed by eighth-note pairs. The second staff (measures 5 and 6) consists of two measures in common time. Measure 5 starts with a quarter note followed by eighth-note pairs. Measure 6 starts with a half note followed by eighth-note pairs.

EXERCISE 150. Write four original broken-chord exercises similar to the above, using chords I-V-V₇-I. Sing the tone of each note while you write it.

The Dominant Seventh-chord with root in the bass appears as follows. It will be noticed that the Root in the bass is *doubled* by an upper voice, just as the roots of the triads were doubled, when four voices are used.

A single staff in common time. The top voice (soprano) has a quarter note on C. The middle voice (alto) has a quarter note on G. The bottom voice (bass) has a quarter note on C. The bassoon (bass) also has a quarter note on C.

The V, chord for four voices is placed in the musical sentence as follows. It will be noticed that the progression V V₇, but not V, V, has been used, because V, is usually followed by I.

A single staff in common time. The soprano voice has quarter notes on G, C, G, C. The alto voice has quarter notes on E, B, E, B. The tenor voice has quarter notes on D, A, D, A. The bassoon voice has quarter notes on C, G, C, G. Below the staff, the Roman numerals I, V, V₇, I are written under the corresponding chords.

The rhythm of the group is either $\frac{3}{4}$ meter:

A single staff in 3/4 time. The soprano voice has quarter notes on G, C, G, C. The alto voice has quarter notes on E, B, E, B. The tenor voice has quarter notes on D, A, D, A. The bassoon voice has quarter notes on C, G, C, G. Below the staff, the Roman numerals I, V, V₇, I are written under the corresponding chords.

or $\frac{2}{4}$ meter beginning on the second beat:

A single staff in 2/4 time. The soprano voice has quarter notes on G, C, G, C. The alto voice has quarter notes on E, B, E, B. The tenor voice has quarter notes on D, A, D, A. The bassoon voice has quarter notes on C, G, C, G. Below the staff, the Roman numerals V, V₇, I are written under the corresponding chords.

The following rhythmic arrangement is not so good, because it makes the awkward progression already referred to, where the chord changes on the last beat of

the measure and is repeated over the bar. The chords V and V₇ are so similar that the effect is almost the same as if the V triad were itself repeated.

A musical staff in G major (treble clef) and common time. It shows four chords: I (G major), V (D major), V7 (D7), and I (G major). The bass line consists of eighth-note patterns: G, B, D; D, A, C; G, B, D; D, A, C.

The above grouping is possible as the *beginning* of a phrase, and might be

finished as follows: . If the chords are

A musical score for piano, featuring two staves. The top staff uses a treble clef and has a key signature of one sharp (F#). The bottom staff uses a bass clef and has a key signature of one sharp (F#). The time signature is common time (indicated by '2'). Measures 1 through 5 show a repeating pattern of chords: G major (G-B-D), C major (C-E-G), F major (F-A-C), and B major (B-D'-F#). The bass line consists of eighth-note patterns.

to form a complete sentence, however, the grouping will be as in one of the two versions given above.

It will be noticed in analyzing music, that the V₇ chord very frequently comes on the up-beat of the measure, followed by the Tonic on the down-beat of the next measure. That is, V₇ | I, not | V₇, I. It has been said that the most *characteristic* use of the V₇ chord is to precede the I within, but most frequently at the end of, the phrase or sentence. Therefore, the Tonic chord, which is the point of rest towards which the Dominant tends, comes on the strong down-beat of the measure. This down-beat accentuates the feeling of finality expressed by the Tonic chord. The student must again be warned that a statement like the above is not to be taken as a *Rule* that must not be broken. Rather is it a statement of general *tendencies*.

An Arabic numeral placed above the Roman numeral refers to the scale-degree of the upper note of the chord. In the following example, I means the Tonic triad with 1 in the Soprano. V means the Dominant Triad with 7 in the Soprano. V_7 means the Dominant Seventh-chord with 7 in the Soprano.

EXERCISE 151. Play the chords $\frac{1}{I} \quad \frac{7}{V} \quad \frac{7}{V_7} \mid \frac{1}{I} \parallel$ as in the above example, in the keys of C, G, F, D and B flat.

EXERCISE 152. Copy and complete the following chord-phrases. Use the nearest position of the chords, keeping the common tone in the same voice.

1 2 3

I V V₇ I I V₇ I I V V₇ I

4 5

I V V₇ I I V V₇ I I V₇ ⁵I ³I ²V ⁴V₇ ³I

EXERCISE 153. After writing the above exercise, sing each of the four voices across in turn, while playing the other three voices. Use number-names.

EXERCISE 154. Copy and resolve each of the following Dominant Seventh-chords. Name the key, and figure both chords, as in the first example. Mark also the direction of the resolution of the moving notes. Notice that

- 7 will move up to 1.
- 4 will move down to 3.
- 5 will remain stationary.

G V₇ I

The Dominant Seventh-chord may be repeated, and the position of the upper voices may be changed before the chord is resolved, as in the following example:

I I V₇ V₇ I

EXERCISE 155. Write the following exercises in the key of G. If the chord repeats, change the position of the three upper voices to a higher or a lower position. If the chord changes, move the upper voices to the nearest position of the second chord, keeping the common tone in the same voice.

²₄ I V | I I | V V₇ | I ||

³₄ I I I | V V₇ | I ||

²₄ V₇ | I I | V V₇ | I V₇ | I ||

To summarize the Chord-Progressions studied so far:

- I may go to V or to V_7 .
- V may go to I or to V_7 .
- V_7 may go to I only.

Chords usually change over the bar.

Chords are often repeated within the measures, that is, between the bars.

The chord I is composed of 1, 3, 5.

The chord V is composed of 5, 7, 2.

The chord V_7 is composed of 5, 7, (2), 4. (2 is usually omitted.)

A phrase may end on I or on V; seldom on V_7 .

To summarize the Melody-Notes harmonized with these chords:

- 1 can be harmonized with I.
- 2 can be harmonized with V.
- 3 can be harmonized with I.
- 4 can be harmonized with V_7 .
- 5 can be harmonized with I or V or V_7 .
- 6 cannot yet be harmonized.
- 7 can be harmonized with V or V_7 .

EXERCISE 156. Sing each of the following melodies, listening to the Harmony implied underneath each note. Then sing each melody-tone and the two nearest chord-tones below it, as in the first example. Use number-names.

Musical staff with a treble clef. The melody consists of eighth-note pairs. Below the staff, numbers indicate harmonic suggestions: 1, 5, 3, 7, 5, 2, 7, 5, 4, 1, 5, 8. Below these numbers are Roman numerals: I, V, V₇, V, V₇, I. Below the staff, the text "not (I)" appears under the first note.

- (1) 1 7 7 | 1 ||
- (2) 1 3 | 2 4 | 3 2 | 3 ||
- (3) 1 3 | 2 7 | 1 3 | 1 ||
- (4) 5 5 | 5 3 | 2 4 | 3 ||
- (5) 3 1 | 3 5 | 5 5 | 5 ||

EXERCISE 157. Play each of the following, and while you play, sing the root of each chord. Use number-names of roots, that is, One, Five, Five-seven.

Three staves of music for Exercise 157. Staff 1 starts with a dominant seventh chord (F#-A-C-E). Staff 2 starts with a dominant seventh chord (B-D-G-B). Staff 3 starts with a dominant seventh chord (E-G-B-E).

EXERCISE 158. Play the two outer voices of the above exercise, while singing the middle voice.

EXERCISE 159. Write the harmonization of each of the following melodies. Use two staves. Put roots in bass, and the three upper voices in close position in the treble.

*Which should be used, V or V₇?

EXERCISE 160. Sing each of the voices in the last exercise while playing the other three voices.

EXERCISE 161. Write the harmonization of the following Basses for four

voices:

EXERCISE 162. Write the harmonization of the following exercises in the key of F. The bass line and the melodic line are given.

(1) I I | V V₇ | I I | V | I I | V V₇ | I I | I I ||

(2) V₇ | I I | I I | V V₇ | I I ||

EXERCISE 163. Play these chords I V V₇ I in all major keys in succession. Begin with C major, and continue through the sharp scales until the key of F# is reached. Then begin with the key of Gb, and continue through the flat scales until the key of C, is reached. Use the same fingering for all keys. The first two keys are written below with the fingering.

EXERCISE 164. Play each of the following chord successions in all major keys, as directed in the last exercise. Use the fingering given below, in all keys.

The following chord-successions introduce the Dominant Seventh-chord harmonizing the melody-note 2. In this case the V chord appears complete, that is, all four of its notes are present—in the key of C, G-B-D-F. The leading-tone, B, moves *down* to G in the following Tonic chord.

$\begin{matrix} 3 \\ \text{I} \end{matrix}$ $\begin{matrix} 2 \\ \text{V}_7 \end{matrix}$ $\begin{matrix} 1 \\ \text{I} \end{matrix}$ $\begin{matrix} 5 \\ \text{I} \end{matrix}$ $\begin{matrix} 3 \\ \text{I} \end{matrix}$ $\begin{matrix} 2 \\ \text{V} \end{matrix}$ $\begin{matrix} 2 \\ \text{V}_7 \end{matrix}$ $\begin{matrix} 1 \\ \text{I} \end{matrix}$

EXERCISE 165. Play each of the above chord-successions in all major keys.

Chord-phrases can be formed by *repeating* any chord, in a different position of the upper voices, before connecting with the next chord. For example, the succession I-V-V₇-I can be made into a four-measure phrase by repeating the three upper voices of each chord in a *different position*, and then connecting the last position with the next chord:

$\begin{matrix} \text{I} \\ \text{I} \end{matrix}$ $\begin{matrix} \text{V} \\ \text{V} \end{matrix}$ $\begin{matrix} \text{V} \\ \text{V}_7 \end{matrix}$ $\begin{matrix} \text{I} \\ \text{I} \text{ or } \text{I} \end{matrix}$ $\begin{matrix} \text{V} \\ \text{V} \endmath>$ $\begin{matrix} \text{V}_7 \\ \text{V}_7 \end{matrix}$ $\begin{matrix} \text{I} \\ \text{I} \end{matrix}$

EXERCISE 166. Play and write a number of four-measure chord-phrases based on the succession I-V-V₇-I. Use $\frac{2}{4}$ and $\frac{3}{4}$ meter. Change keys frequently, and avoid the key of C.

EXERCISE 167. Play and write a number of four-measure chord-phrases following the chord-succession I-V-I-V₇-I.

CHAPTER FIFTEEN

Review

TRIADS:

1. What is a Triad?
2. What intervals compose a Major Triad?—a Minor Triad?—a Diminished Triad?
3. On what degrees of the scale are Major Triads found?
4. On what scale-step is the Diminished Triad found?
5. Recite the Minor Triads that occur in the scale of B Major.
6. Recite all Major Triads in the key of B \flat .
7. In what three keys does each of the following Triads appear: D-F \sharp -A, F-A-C, G-B \flat -D, E-G \sharp -B, E-G-B.
8. The Triad on the fourth degree of G is the Dominant Triad in what key?

9. Erect a Major Triad on each of the following root-notes: G, A, B \flat , F \sharp , E.
10. Form a Minor Triad on each of the following notes: F, C, B \flat , G \sharp .
11. Play all seven Triads in the key of B \flat spelling aloud while you play, and naming the *kind* of each Triad, whether Major, Minor or Diminished.
12. The Tonic Triad of E \flat is also the Dominant Triad of—?
13. Sing the following broken chords in all keys, using letter-names: 5 3 1 — 5 2 7 — 5 3 1
14. Complete the following broken-chord melodies, using the chords I, V, I.

The image shows two staves of musical notation. The top staff is in G major (one sharp), indicated by a sharp sign in the key signature. The bottom staff is in D major (two sharps), indicated by two sharp signs in the key signature. Both staves begin with a quarter note followed by eighth notes. The top staff has a treble clef and the bottom staff has a bass clef.

DOMINANT SEVENTH-CHORD:

1. Spell the complete Dominant Seventh-chord in all keys.
2. Which note of the Dominant Seventh-chord may be omitted, and why?
3. In what key does each of the following chords appear? D-F \sharp -A-C, B \flat -D-F-A \flat , G \sharp -B-D-E, G-B-D-F, G-B \flat -D \flat -E \flat , G-B \flat -C-E, G-A-C \sharp -E.
4. Using number-names, sing each of the following broken chords, followed by the Tonic chord notes in the nearest position.

The image shows a single staff of musical notation. It features four numbered positions (1, 2, 3, 4) above the notes. The staff begins with a quarter note followed by eighth notes. The notes are: 1 (quarter note), 2 (eighth note), 3 (eighth note), 4 (eighth note).

5. Resolve each of the following chords, singing the notes of each Tonic Triad in the same melodic shape as the Dominant Seventh, as shown in the first Example.

The image shows a single staff of musical notation. It features five numbered positions (1, 2, 3, 4, 5) above the notes. The staff begins with a quarter note followed by eighth notes. The notes are: 1 (quarter note), 2 (eighth note), 3 (eighth note), 4 (eighth note), 5 (eighth note).

6. Write a broken-chord exercise based on the chords I-V-V \flat -I.
7. Sing the following melodies and the harmonies underneath each note.

The image shows a single staff of musical notation. It features two numbered positions (1, 2) above the notes. The staff begins with a quarter note followed by eighth notes. The notes are: 1 (quarter note), 2 (eighth note).

8. Play the following chord-successions in all keys.

The image shows a single staff of musical notation. It consists of two staves: a treble clef staff at the top and a bass clef staff at the bottom. The staff shows a sequence of chords: I (G major), I (G major), V (D major), I (G major), V (D major), I (G major), V (D major), I (G major).

9. Write a chord-phrase based on the following succession of chords:
I I | V I | V \flat V \flat | I ||

GENERAL:

1. What are the overtones of D flat?
2. The tone of this pitch  can be produced on the piano by what strings?
3. What scale has five sharps?—three flats?—two sharps?
4. What are the perfect fifths in the key of A flat?
5. How many major thirds occur in the scale of D?
6. A minor third on G becomes what interval when it is inverted?
7. What is the interval from 4 up to 7?—from 3 up to 6?—from 1 down to 2?—from 3 down to 5? Illustrate each of the above, using the notes of the scale of B flat.
8. Sing A (getting the pitch from the piano); then sing the following intervals, giving letter-names: Perfect fifth down, Major third up, Diatonic half-step up, Perfect fourth up, Minor sixth down, Perfect fourth up. The last letter is A. Touch A on the piano again and discover if you are on the correct pitch.
9. The fifth degree of G is 3 of a scale whose Dominant is—?
10. Which degree of the scale is called the Mediant? Why?
11. Name the Mediant in the following keys: B flat, G, D, F.
12. What does Submediant mean?
13. What is the Submediant in A flat?—in B?—in D flat?
14. 4 of E is the Submediant of what key?
15. The Dominant of D is the Supertonic of—?
16. Write a chain-question 15 items long, on scale-degrees and intervals.
17. What is phrasing?
18. What is a broken chord?
19. What are the two most "sensitive" scale-degrees? Why?
20. What is a Sequence?
21. What is a Cadence?
22. Illustrate on the piano, in the key of B, a Perfect Authentic Cadence, and an Imperfect Authentic Cadence.

PART FOUR

CHAPTER SIXTEEN

Non-Harmonic Tones and the Harmonic Background of Melodies

All melodies harmonized thus far have consisted only of chord-notes. That is, each melody-note was a part of the harmony that was sounding with it. Almost every melody, however, contains notes that *do not* belong to the harmonies with which they sound. These notes are called *Non-harmonic* notes.

For example, take the melody "London Bridge is falling down":



The roots that fit underneath this melody are the Tonic and Dominant, as we can hear by playing the melody and the roots that occur on the first beat of each measure.

If the chords corresponding to the roots are also written, we have the melody and accompaniment as follows:

The chord of the first and second measures is G-B-D. Any note other than G-B-D is non-harmonic to this chord. E and C in the first measure, and C in the second measure, are non-harmonic, which is indicated by a line drawn through the heads of those notes. (See the above example.)

The chord of the third measure is the Dominant Seventh-chord D-F#-A-C. B is a non-harmonic note, and is cancelled. The seventh of the chord (c) is not used in the accompaniment, as it sounds badly to double this weak note in two voices.

In the fourth measure, C is non-harmonic to the Tonic Triad.

The fifth and sixth measures are the repetition of the first two.

In the seventh measure, the two notes A and D are both part of the chord D-F#-A-C.

The eighth measure contains B and G, both chord-notes.
If the melody is played stripped of all non-harmonic notes, we have:



The following melody is written with roots in the bass, the non-harmonic notes being cancelled.

EXERCISE 168. Study the above melody as follows:

1. Play the melody and the roots, omitting non-harmonic notes from the melody.
2. Play the complete melody and the roots, and listen to the moving dissonant quality of the non-harmonic notes.
3. Play the melody while singing the roots in the higher octave.
4. Play the roots in the octave where they are written, while singing the melody.
5. Play the accompanying chords (roots in the left hand, three-note chords in the right) while singing the melody.

EXERCISE 169. Sing each of following melodies. Mark the phrasing, write the roots, and cancel the non-harmonic notes. Be careful to think of each melody in the proper rhythm and speed, in order to avoid the common tendency to put a chord under *each* note. Play and sing each example in all of the ways given in the last exercise.

EXERCISE 170. Copy and phrase the following melodies. Cancel the non-harmonic notes. Write the chord background on two staves underneath each melody, as "London Bridge" is printed on Page 106. Sing and play each example in all the ways described above.



EXERCISE 171. Sing the Soprano of each of the following exercises while playing the Alto; then sing the Alto while playing the Soprano. Do this very softly and slowly, listening to the blending of the tones. Notice whether the two tones form a consonance or a dissonance. Notice where the feeling of the chord background changes from Tonic to Dominant, or to Dominant Seventh. Use sometimes number-names and sometimes letter-names in singing.

1

2

3

4

5

6

7

8

EXERCISE 172. Write an Alto to each of the following Sopranos, using notes of the same values as the Soprano notes; that is, put a quarter-note beneath a quarter, and a half-note beneath a half, etc.

EXERCISE 173. Write an Alto in the rhythm of half-notes to each of the following Sopranos:

EXERCISE 174. Write an Alto to the following Soprano:

CHAPTER SEVENTEEN

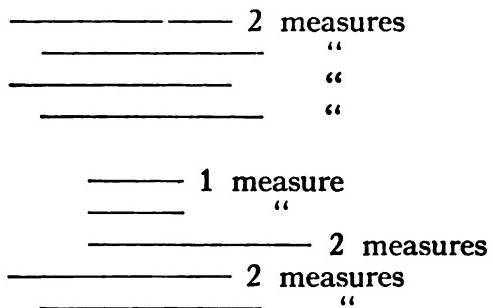
Analysis of Small Pieces Harmonized with Tonic and Dominant Triads, and Dominant Seventh-Chord

The following small pieces are harmonized with the three chords that have thus far been studied.

The first piece is a folk-song already studied. It would be phrased as follows:

The image shows two staves of musical notation. The top staff is in treble clef and the bottom staff is in bass clef. Both staves are in common time (indicated by a '4'). The music consists of eighth and sixteenth note patterns. Measure lines are drawn across the staves to group the notes into measures, which are then bracketed into phrase groups.

The plan of Phrase-lengths, putting a short group on a line, follows:



The spelling of the three chords is as follows:

Key of F. I = F-A-C.
V = C-E-G.
V₇ = C-E-G-B_b.

In the following example, the root-letters are written beneath the bass line, and the non-harmonic notes are cancelled. The figures of the chords are written between the staves.

The image shows two staves of musical notation. The top staff is in treble clef and the bottom staff is in bass clef. Both staves are in common time (indicated by a '4'). The music consists of eighth and sixteenth note patterns. Root-position chords are indicated by Roman numerals (I, V) placed between the staves. Below the bass staff, the root notes (F, C, F, C, F) are written. The non-harmonic notes are cancelled.



4

Musical score for piece 1, measure 3. The score consists of two staves: treble and bass. The treble staff has a clef, a key signature of one sharp, and a common time signature. The bass staff has a bass clef and a common time signature. The music consists of eighth-note patterns.

Musical score for piece 1, measure 4. The score consists of two staves: treble and bass. The treble staff has a clef, a key signature of one sharp, and a common time signature. The bass staff has a bass clef and a common time signature. The music consists of eighth-note patterns.

5

Musical score for piece 1, measure 5. The score consists of two staves: treble and bass. The treble staff has a clef, a key signature of one sharp, and a common time signature. The bass staff has a bass clef and a common time signature. The music consists of eighth-note patterns.

Musical score for piece 1, measure 6. The score consists of two staves: treble and bass. The treble staff has a clef, a key signature of one sharp, and a common time signature. The bass staff has a bass clef and a common time signature. The music consists of eighth-note patterns.

The image displays four staves of musical notation for piano, arranged vertically. The top staff shows a melody in G major (one sharp) with eighth-note patterns. The second staff shows harmonic bass notes (root position triads) below the melody. The third staff shows a continuation of the melody and harmonic bass. The fourth staff shows a continuation of the melody and harmonic bass, concluding with a half note and a fermata over the bass staff.

CHAPTER EIGHTEEN

Subdominant Triad

The *Subdominant Triad* is built upon the fourth degree of the scale. The numbers are 4-6-1.

EXERCISE 176. Recite the spelling of this chord in all keys.

The numbers 4-6-1, arranged in a column as the chords previously studied have been arranged, appear as follows:

1

6

4

1

6

IV

EXERCISE 177. Sing from each number in the above column to each of the other numbers in turn; also practise using letter-names in various keys, instead of number-names.

EXERCISE 178. What are the intervals between the following pairs of notes?

- 6 up to 1?
- 4 down to 6?
- 6 down to 4?
- 4 up to 6?
- 1 up to 1?
- 4 up to 1?
- 6 down to 1?



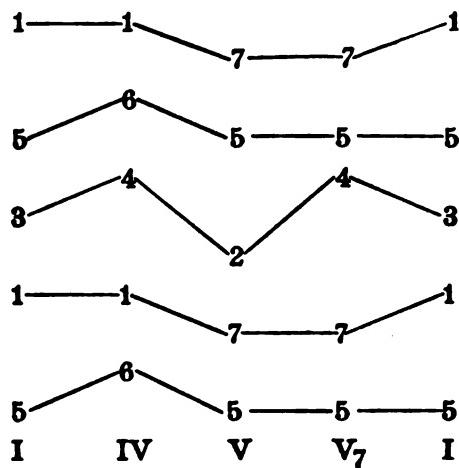
EXERCISE 179. Write the notes of each of the three positions of the Subdominant Triad of the key of G, in six melodic shapes. That is, write

in 6 shapes, in 6 shapes, and in 6 shapes.

EXERCISE 180. Sing the following groups, using number-names.



The following table gives the notes of the Subdominant Triad in connection with the three chords already studied.



EXERCISE 181. Complete the following broken-chord melodies, using the chords I IV V V₇ I, as given in the above table. Write on the staff. Sing each tone as you write the note. Avoid writing exclusively in the key of C.



EXERCISE 182. Write 6 original broken-chord melodies based on the chords given above.

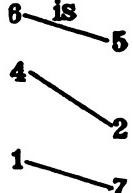
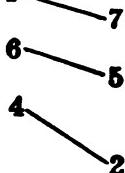
The ending IV-I is called the *Plagal Cadence*. If the Tonic Triad has 1 in the Soprano, we have the Perfect Plagal Cadence. If 3 or 5 of the Tonic Triad is in the soprano, the Cadence is Imperfect.

Perfect Plagal Cadence. Imperfect Plagal Cadences.

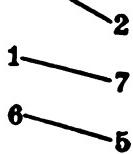


EXERCISE 183. Play each of the above Cadences in all keys, C to F#, and Gb to C, in continuous rhythm; that is, go from one key to the next without stopping.

It will be noticed that there is a common tone, 1, between the chords I and IV, and a common tone, 4, between the chords IV and V₇. There is no common tone between IV and V. In studying the above broken-chord table, notice that the nearest horizontal group to 1 is 7 and the nearest group to 6 is 5.



and the nearest group to 4 is

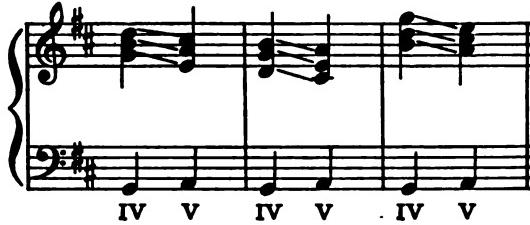


Each note of chord IV moves *down* to the nearest note of chord V; 1 moving down to 7, 6 down to 5, and 4 down to 2.

In other words, 1 does *not* move to 2 but *does* move to 7

6	"	"	"	"	7	"	"	"	"	5
4	"	"	"	"	5	"	"	"	"	2

When the root-notes are played with these chords, it will be noticed that while the three upper voices are moving *down*, the bass is moving *up*. This is called moving in "contrary motion"; and it usually takes place where two chords on adjoining degrees (as IV and V) are connected.



To summarize:

IV can be followed by I; common tone, 1.

IV can be followed by V_7 ; common tone, 4.

IV can be followed by V; no common tone, upper voices move *down*.

V seldom goes to IV. Why?

The chord IV gives us the possibility of harmonizing the melody-notes 4, 6 and 1.

The melody-notes harmonized thus far as *chord-notes*, that is, not as non-harmonic notes, are as follows:

1 can be harmonized with I or with IV.

2 can be harmonized with V or with V_7 .

3 can be harmonized with I.

4 can be harmonized with V_7 or with IV.

5 can be harmonized with I or with V or with V_7 .

6 can be harmonized with IV.

7 can be harmonized with V or with V_7 .

EXERCISE 184. Sing the following melodies and the harmonic tones beneath each melody-tone, as in the first example. If the melody-tone repeats, change the chord under the second tone.

EXERCISE 185. Sing the following melodies written in figures (that is, not on the staff) in the same way as directed in the last exercise. Sing sometimes letter-names, and sometimes number-names.

1 1 | 1 || 3 4 | 3 || 3 4 4 | 3 ||
 5 6 | 5 || 1 1 7 | 1 || 5 6 5 | 5 ||
 1 1 | 7 7 | 1 || 3 4 | 2 4 | 3 ||
 5 6 | 5 5 | 5 || 3 1 | 1 7 | 1 ||

The following melodies containing non-harmonic notes illustrate the use of chord IV. The Subdominant Triad appears prominently as the appropriate harmony in at least one measure of each melody.

EXERCISE 186. Study each melody as follows:

1. Play the melody and the roots.
2. Cancel the non-harmonic notes in the melody.
3. Play the melody and the roots, omitting the non-harmonic notes.
4. Play the complete melody and the roots, and listen to the dissonant quality of the non-harmonic notes.
5. Play the melody while singing the roots in the octave above.
6. Play the roots in the octave where they are written, while singing the melody.
7. Play the accompanying chords (roots in left hand, three-note chords in right) while singing the melody.

EXERCISE 187. Play the following chord-successions in a number of keys. Roots are to be played in the left hand, and three-note chords in the right. Observe the following rules:

1. If the chord repeats, change the position of the upper voices.
2. If the chord changes, move the upper voices to the nearest position, keeping the common tone in the same voice.
3. If there is no common tone (as in moving from IV to V), move the upper voices in contrary motion to the bass; that is, move the upper voices and the bass towards the common center.

1 I IV V | I || 2 I IV V V' | I ||
 3 I IV V, | I || 4 I IV | I I | IV V | I ||
 5 I I | V I | IV IV | I ||

It is an excellent plan to *spell each chord aloud* in its *root position* (no matter what the position of the upper voices) before playing it. This is a great help in keeping the mind clear as to keys, accidentals, etc., and prevents the student from playing by finger-sense alone.

For example, the succession I I | IV IV | V V, | I || might be worked out as follows in the key of D.

Before playing the first chord, spell aloud "Tonic, D-F♯-A." Then play the

first chord, which might be in this position:



Spell aloud, "Tonic, D-F♯-A, change position." Then play the second chord

which might be in this position:



Spell aloud, "Subdominant, G-B-D, nearest position." Then play the third chord, which *must* be in this position, in order to keep the common tone, D, in the same voice.



Spell aloud, "Subdominant, G-B-D, change position." Then play the fourth

chord, which might be in this position:



Spell aloud "Dominant, A-C♯-E, move to nearest position down." Then play

the fifth chord, which *must* be:



Spell aloud "Dominant Seventh, A-C#-E-G (omitting E), nearest position."

I I IV IV V V₇

Then play the sixth chord, which *must* be:

Spell aloud "Tonic, D-F#-A, nearest position." Then play the seventh chord,

I I IV IV V V₇ I

EXERCISE 188. Write three four-measure chord-phrases, using the four chords studied. Then sing each voice across while playing the other three voices.

EXERCISE 189. Write the following exercise, composed of two balanced phrases. The line — means that the chord is to be held for two beats. In this exercise the meter is $\frac{3}{4}$, therefore, a numeral followed by a dash represents a half-note. Rewrite in several keys, varying the position of the upper voices. Sing the pitch of each note while writing.

$\frac{3}{4}$ | I I I | IV IV IV | I—I | V |
| I I I | IV IV I | V—V₇ | I ||

EXERCISE 190.

1. The Subdominant Triad of F is the Dominant Triad of—?
2. The chord D-F#-A is Tonic Triad of what key? It is also Dominant Triad of what key? And Subdominant Triad of what key?
3. Classify the chord F-A-C in three keys.
4. The Subdominant Triad of A flat is the Dominant Triad of a key whose signature is—?

EXERCISE 191. Write five similar questions and answers introducing the Subdominant Triad.

In the following examples, the Triad C-E-G is treated

1. as the Tonic Triad in the key of C,
2. as the Dominant Triad in the key of F,
3. as the Subdominant Triad in the key of G.

Play each example slowly, noticing the entirely different effect of the chord

in each example.

I IV IV V V I I IV IV

v I I IV V V₇ I

EXERCISE 192. Write three similar chord-successions, introducing the

chord { as

1. Tonic Triad in the key of B flat.
2. Dominant Triad in the key of E flat.
3. Subdominant Triad in the key of F.

EXERCISE 193. Write three four-measure chord-successions, introducing the D major Triad, each time in a different key.

Play the following Cadences, and notice the great difference in feeling between the two.

v I IV I

The Authentic Cadence V-I, with its upward moving leading-tone, gives a strong feeling of pushing towards a climax.

The Plagal Cadence IV-I, with the downward tendency of the notes 4 and 6, gives the feeling of quieter conclusion, of reiteration. It is most appropriately used with the word "Amen," meaning "So be it."

An interesting point is the use that different composers make of these endings. Beethoven employs most frequently the V-I ending, often repeated over and over, as in the ending of the Fifth Symphony, where he says V-I six times in succession, and then repeats his I for twenty-eight measures more. Brahms frequently uses the ending IV-I, as in the songs "Die Mainacht," "An die Nachtigall," and the last passage in the A major Violin Sonata.

EXERCISE 194. Quote the Plagal Cadence from four pieces. Quote the Authentic Cadence from four pieces.

EXERCISE 195. Write the harmonic background of each of the following melodies:

1 2 3

EXERCISE 196. In the following examples, sing the soprano while playing the alto, then sing the alto while playing the soprano.

1 2 3 4 5
6 7 8 9
10 11
12 13
14

EXERCISE 197. Write an alto beneath each of the following sopranos, using the Subdominant in each example:

1 2
3
4

CHAPTER NINETEEN

Analysis of Small Pieces Containing the Subdominant Triad

EXERCISE 198. Analyze the following pieces:

1. Put in meter-sign or bars if they are lacking.
2. Mark phrasing.
3. Draw plan of phrase-lengths.
4. Write spelling of chords, I, IV, V, V₇.
5. Mark root-letters of chords and chord-figures. (Roots are not always in the bass part.)
6. Cancel non-harmonic notes.
7. Play without non-harmonic notes.
8. Write plan of harmony, observing Form of chord-succession.
9. Play as originally written, while some one plays the roots at the lower end of the keyboard; that is, below the bass part of the piece.

Musical score for Exercise 198, piece 1, page 1. The score consists of two staves. The top staff is treble clef and the bottom staff is bass clef. Both staves have a key signature of one sharp (F#). The music is in common time. The first measure shows eighth-note patterns in both staves. The second measure continues with eighth-note patterns. The third measure shows a sixteenth-note pattern in the bass staff followed by a quarter note in the treble staff. The fourth measure shows eighth-note patterns in both staves. The fifth measure shows a sixteenth-note pattern in the bass staff followed by a quarter note in the treble staff. The sixth measure shows eighth-note patterns in both staves.

Musical score for Exercise 198, piece 1, page 2. The score consists of two staves. The top staff is treble clef and the bottom staff is bass clef. Both staves have a key signature of one sharp (F#). The music is in common time. The first measure shows eighth-note patterns in both staves. The second measure continues with eighth-note patterns. The third measure shows a sixteenth-note pattern in the bass staff followed by a quarter note in the treble staff. The fourth measure shows eighth-note patterns in both staves. The fifth measure shows a sixteenth-note pattern in the bass staff followed by a quarter note in the treble staff. The sixth measure shows eighth-note patterns in both staves.

Musical score for Exercise 198, piece 2, page 1. The score consists of two staves. The top staff is treble clef and the bottom staff is bass clef. Both staves have a key signature of one sharp (F#). The music is in common time. The first measure shows eighth-note patterns in both staves. The second measure continues with eighth-note patterns. The third measure shows a sixteenth-note pattern in the bass staff followed by a quarter note in the treble staff. The fourth measure shows eighth-note patterns in both staves.

Musical score for Exercise 198, piece 2, page 2. The score consists of two staves. The top staff is treble clef and the bottom staff is bass clef. Both staves have a key signature of one sharp (F#). The music is in common time. The first measure shows eighth-note patterns in both staves. The second measure continues with eighth-note patterns. The third measure shows a sixteenth-note pattern in the bass staff followed by a quarter note in the treble staff. The fourth measure shows eighth-note patterns in both staves.

The image displays five staves of musical notation for piano, arranged vertically. Each staff consists of a treble clef, a bass clef, and five horizontal lines. The music is written in common time.

- Staff 3:** The treble clef staff shows a sequence of eighth and sixteenth notes. The bass clef staff shows a continuous eighth-note pattern.
- Staff 4:** The treble clef staff shows a sequence of eighth and sixteenth notes. The bass clef staff shows a continuous eighth-note pattern.
- Staff 5:** The treble clef staff shows a sequence of eighth and sixteenth notes. The bass clef staff shows a continuous eighth-note pattern.
- Staff 6:** The treble clef staff shows a sequence of eighth and sixteenth notes. The bass clef staff shows a continuous eighth-note pattern.
- Staff 7:** The treble clef staff shows a sequence of eighth and sixteenth notes. The bass clef staff shows a continuous eighth-note pattern.

CHAPTER TWENTY

Review

1. What is a non-harmonic note?
 2. Do most melodies contain non-harmonic notes?
 3. Are non-harmonic notes consonances or dissonances?
 4. In the following example, where does C in the soprano become a non-harmonic note? Why?



- ### **5. What are the non-harmonic notes in the following melody?**



6. The following melodies are composed of chord-notes only. Rewrite each melody, embellishing with other chord-notes, or with non-harmonic notes. Do not use so many non-harmonic notes that the sense of the original is lost.

A musical staff with a treble clef and a key signature of one sharp. Measure 1 consists of six eighth notes. Measure 2 begins with a sharp sign over the first note, followed by five eighth notes.

7. What note must be added to each of the following major triads in order to make it a Dominant Seventh-chord?



8. Play each of the following major triads. Spell each chord in its root-position. Then add the note that will turn each triad into a Dominant Seventh-chord, using four notes, and resolve the Dominant Seventh-chord thus formed to its own Tonic triad, using four notes, by doubling the root of I. The first two would be as follows:

Example



Spell, "D-F#-A, add C, resolves to G-B-D."

Notice that both 2 and 7 in the Dominant Seventh resolve to unison in the Tonic. In three of the examples, 2 and 7 resolve to the octave.

Example



or

Spell, "F-A-C, add E flat, resolves to Bb-D-F."

A musical staff with seven notes labeled 1 through 7. The notes are: 1 (F#), 2 (D), 3 (C), 4 (B), 5 (G), 6 (E), and 7 (A). The staff has a treble clef and a key signature of one sharp.

9. Describe the musical impression given by each of the following chords:
The Tonic Triad,
The Dominant Triad,
The Subdominant Triad,
The Dominant Seventh-chord.

10. Play the following chords in all major keys:



11. Sing the alto in the following exercises while playing the soprano.

Three staves of musical notation. Staff 1 (top) starts with a treble clef, a key signature of one sharp (F#), and a common time signature. It consists of two measures of eighth-note patterns. Staff 2 (middle) starts with a treble clef, a key signature of one sharp (F#), and a common time signature. It consists of three measures of eighth-note patterns. Staff 3 (bottom) starts with a treble clef, a key signature of one sharp (F#), and a common time signature. It consists of three measures of eighth-note patterns.

PART FIVE

CHAPTER TWENTY-ONE

Minor Scales—Chromatic Scales

In old times there were a number of scales in use. These were called *Modes*. The tones of the white keys on the piano, beginning on any key and going up one octave, correspond to the tones of these modes.

For example: C-D-E-F-G-A-B-C was called the Ionian Mode;
D-E-F-G-A-B-C-D was called the Dorian Mode;
F-G-A-B-C-D-E-F was called the Lydian Mode; etc.

The Ionian Mode, C-D-E-F-G-A-B-C, is our Major Scale beginning on C.

The only other Mode that we shall study is the *Æolian Mode*, A-B-C-D-E-F-G-A, from which is derived our modern Minor Scale.

This scale  is called the *Natural or Pure*

form of the Minor.

It is made of the same notes as the scale of C Major beginning on the sixth degree of C major, and is called the *Relative Minor* of C.

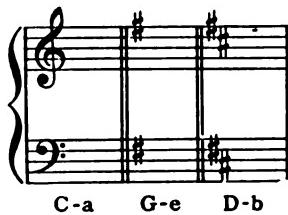
The Relative Minor of G major, beginning on the sixth degree of G, is therefore E minor. The relative minor of F, beginning on its sixth degree, is D minor.

Minor Scales use the same signatures as their relative Majors.

EXERCISE 199. Memorize the following table of Signatures:

- No sharp or flat, C Major and A Minor.
- One sharp, G Major and E Minor.
- Two sharps, D Major and B Minor.
- Three sharps, A Major and F sharp Minor.
- Four sharps, E Major and C sharp Minor.
- Five sharps, B Major and G sharp Minor.
- Six Sharps, F sharp Major and D sharp Minor.
- One flat, F Major and D Minor.
- Two flats, B flat Major and G Minor.
- Three flats, E flat Major and C Minor.
- Four flats, A flat Major and F Minor.
- Five flats, D flat Major and B flat Minor.
- Six flats, G flat Major and E flat Minor.

EXERCISE 200. Write from memory all signatures in both clefs, and state the Major and Minor key that each indicates. The first three keys are given below. A capital letter indicates a Major key; a small letter indicates a Minor key.



EXERCISE 201. Play each Major Scale and its relative Minor up one octave. Say the number-name of each scale-degree as you play it, calling the first note of the minor scale *One*. The first two scales are written below.

1, 2, 3, 4, 5, 6, 7, 1 1, 2, 3, 4, 5, 6, 7, 1
1, 2, 3, 4, 5, 6, 7, 1 1, 2, 3, 4, 5, 6, 7, 1

EXERCISE 202. Name each signature, then play the Tonic Triad of the Major key, and the Tonic Triad of the relative Minor key. Use two hands, and finger as given below. Notice that the two lower notes of the Major chord are the same as the two higher notes of the Minor chord.

Say "No sharp or flat, C major." Play  "and A Minor." Play 



Say "One sharp, G major." Play  "and E Minor." Play 

And so on through all keys, C to F sharp, and G flat to C.

The interval in the Pure minor scale from 7 up to 1, was found to be difficult to sing in tune. Sing slowly the Pure minor scale of A, and notice the large, rather awkward interval from G up to A.



The ear was accustomed to the interval of a half-step between the leading-tone and the tonic in the major scale. So the leading-tone, 7 of the minor scale, was raised a half-step to bring it a half-step below the tonic. In the scale of A minor, G was raised to G sharp.



This is called the *Harmonic* form of the minor scale.

The raised seventh note is called the "accidental." It does not appear in the signature, but is placed before the individual note which it affects.

If the seventh note is a natural in the signature, the accidental is a sharp; as in the scale of A minor given above, where G natural is raised to G sharp.

If the seventh note is a flat in the signature, the accidental is a natural; as in the scale of C minor, where B flat is raised to B natural.



If the seventh note is a sharp in the signature, the accidental is a double-sharp; as in the scale of G sharp minor, where F sharp is raised to F double-sharp.



EXERCISE 203. Write each major scale from memory, and beneath it write its relative minor scale in the pure form and also in the harmonic form, as in the Example given below.

Major Scale

Pure Minor

Harmonic Minor

EXERCISE 204.

- A. 1. C is the major key: what is the relative minor?
2. G is the major key; what is the relative minor?
3. D is the major key; what is the relative minor?
4. F sharp is the major key; what is the relative minor?
5. B flat is the major key; what is the relative minor?
6. G is the minor key; what is the relative major?
7. F is the minor key; what is the relative major?
8. A is the minor key; what is the relative major?
9. A is the major key; what is the relative minor?
- B. 1. What two keys use the signature of 5#?—4#?—3#?—3b?—2b?
2. What is the signature of F major? F minor? B major? B minor?
- C. 1. What is the seventh scale-step of each of the following minor scales in the pure form and in the harmonic form: G, D, F, B flat, F sharp?
2. What is the mediant of each of the following minor scales: A, G, F, G sharp?
3. C is the mediant of what minor scale?
4. C is the mediant of what major scale?
5. B is the mediant of what major scale? Of what minor scale?
6. What is the dominant of C major? Of C minor? Of A major?
Of A minor?
7. G is the subdominant of what major scale? Of what minor scale?

The minor scale that begins on the same keynote as a major scale, is called its *Tonic Minor*.

C minor is therefore the Tonic minor of C major as well as being the relative minor of E flat major.

Using the harmonic form of the minor scale, we will now compare the scales of C major and C minor.



It will be noticed that the only notes that are different between the major scale and its tonic minor are the third and sixth degrees, which are a half-step lower in minor than in major.

EXERCISE 205. Recite the letters of the scale of C major and the scale of C minor, grouping the letters with a pause on the third and sixth letters:

C-D-E¹ - F-G-A¹ - B-C, C-D-E¹b - F-G-A¹b - B-C

Then recite the following major scales and their tonic minors, using the above rhythmic grouping of the letters. Scales B, F, A, G, E, D.

Unless otherwise directed, the harmonic form of the minor is to be used in the following exercises.

EXERCISE 206.

1. D is the minor; what is the relative major? What is the tonic major?
2. A is the major; what is the relative minor?—the tonic minor? Recite all three scales.
3. What is 4 of each of the following scales: D major, D minor, E major, E minor, B major, B minor?
4. What is 3 of F major, F minor, C major, C minor?
5. What is 6 of G major, G minor, A major, A minor?

It will be noticed that each white key on the piano is the keynote of a major scale, and also of a minor scale. That is, we have a scale of C major and one of C minor; a scale of D major and one of D minor; E major and E minor; etc.

In naming the black keys, however, the name of the keynote in major is not always the same as the name of the keynote in minor, because the name of the minor key must agree with the name of its relative major. For instance, there is a scale of D flat major with five flats, but there is no scale of D flat minor. The scale on this black key is called C sharp minor, relative to E major; not D flat minor, which would have to be relative to F flat major—and there is no such scale.

Using the next black key, there is a scale of E flat major, and also scales of both D sharp and E flat minor, when used—relative respectively to F sharp and G flat major.

The following is a summary of the names of the black keys as the keynotes of major and minor scales. The keys of C sharp and C flat major and their relative minors are seldom used, and are not included.

Major Scales are formed on D_b, E_b, G_b (or F[#]), A_b, B_b.
Minor Scales are formed on C[#], D[#] (or E_b), F[#], G[#], B_b.

EXERCISE 207. Play the chromatic scale one octave from C to C, and recite the name of the major scale and the name of the minor scale built on each note, with the signature of each scale. Begin as follows: C major, no sharp or flat, C minor, three flats; D_b major, five flats; C[#] minor, four sharps; etc.

EXERCISE 208. Recite from memory the table of signatures, and spell the Tonic Triad of each Major scale and the Tonic Triad of the relative minor. Begin as follows:

No sharp or flat, C major, C-E-G, and A minor, A-C-E.
 One sharp, G major, G-B-D, and E minor, E-G-B, etc.

The signature tells only half the story of the key of a piece. To determine by eye whether a piece is in major or minor, recite the spelling of the two triads, and decide to which the melody conforms.

For example, the following fragments have the signature one sharp:



The first one is built around the triad G-B-D, and is in G major. The second is built around the triad E-G-B, and is in E minor.

The first two or three measures of a piece usually show the key clearly. It is not (as is sometimes said) the last note in the piece which determines whether it is in major or minor. Neither is it (as is sometimes said) the presence of the accidental which determines whether it is in major or minor. In the second melody given above, the tune is not complete, so the last note does not appear; also, the seventh note is not used, so there is no accidental. The melody, however, is clearly in E minor, because it conforms to the chord E-G-B.

EXERCISE 209. Look over the following fragments of melody, and decide the key of each, whether major or minor.

EXERCISE 210. Using the harmonic minor scale, sing from the scale ladder, from each number to each of the other numbers in turn.

1
7
6
5
4
3
2
1
7
6
5

EXERCISE 211. Sing the following groups, using harmonic minor, being careful of the intonation of 3 and 6.

1 3 5. 5 6 5. 5 7 1. 1 2 3 7 1. 5 6 5 7 1.
1 3 5 | 1 4 6 | 5. 3 1 2 7 1.

EXERCISE 212. Rewrite each of the following major melodies in its Tonic minor key. The melodies consist of broken chords, that is, they are harmonic melodies. They will, therefore, be put into the harmonic minor scale. The first melody is written out as illustration.

The next step in the development of the minor scale was to remove the large interval between the sixth and seventh degrees, which is difficult of intonation. In A minor, it is the interval F up to G#.

The objective in an ascending scale being the upper keynote, the obvious thing to do was to raise the sixth step as well as the seventh, on the way up toward the upper keynote. This gives us the following scale.



This form of minor scale is exactly the same as the Tonic major scale, with the exception of the third degree. The third degree is always a minor third above the keynote in all forms of the minor scale.

The objective in a descending scale being the lower keynote, these raised notes, which help so much in the upward progression, are exactly what we do not want in the downward scale. Therefore, they are omitted, and the scale descends in the *pure form*, that is,



This is called the *Melodic* form of the minor scale, as it is the most melodious and easy to sing.

The Pure minor is seldom employed by composers nowadays. There are many very beautiful Folk-tunes written in this as well as in the other modes. Examples of these Modal tunes will be given later.

The Harmonic minor is used largely in part-writing.

The Melodic minor is used largely in melody-writing.

EXERCISE 213. Write all three forms of the minor scale on each of the following keynotes: C, A, G, C#, Bb, G#, D, B, F#, E.

EXERCISE 214. Sing the following groups in minor, following the melodic minor scale; that is, raise 6 and 7 if they are moving up the scale, but not if they are moving down.

1 3 | 5 6 | 5. 5 6 7 | 1. 1 3 5 | 1 4 6 | 5. 1 7 | 1. 1 7 | 6 5 | 1.
3 6 | 5. 5 7 | 1. 1 3 6 | 5. 1 3 | 7 6 | 5.

EXERCISE 215. Write each of the following major melodies in its Tonic minor, using preferably the Melodic minor scale.

In the third melody, D in the second measure, being part of the broken chord Bb-D-F, follows the harmonic scale. D will become D flat.

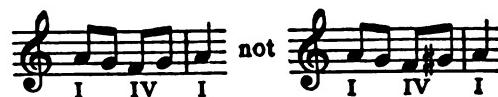
The *harmonic sense* of a melody largely determines whether the sixth and seventh degrees shall be high or low.

The characteristic feeling of Subdominant harmony is *low*. The melody-note 6 in minor is low, if harmonized with the chord IV (following the harmonic minor scale). If the progression 6 7, or 7 6, is used with the chord IV, *both* 6 and 7 are

usually low. That is:



where we have

 even though 7 (G) is moving up to 1

(A). If the melody runs 1 7, over the chord IV, 7 will, however, be high,



unless the tune is in pure minor.

The characteristic feeling of Dominant harmony is *high*. The melody-note 7 in minor is high, if harmonized with the chord V (following the harmonic minor scale). If the progression 6 7, or 7 6, is used with the chord V, *both* 6 and 7 are

usually high. That is:



A musical ear is, of course, the best guide in studying music. A student with a strong intuitive sense of melody and harmony, will probably find these explanations irksome. They are given more especially for the benefit of the many students whose musical sense has to be developed by a more conscious mental effort.

EXERCISE 216. Write each of the following major melodies in the Tonic minor, being careful to preserve the *Harmonic sense*.



EXERCISE 217. Study the following melodies. Some are in major, some are in minor, either pure or melodic. Decide first whether the melody is in major or minor, and if minor, which of the two forms.

Mark Phrasing: memorize each melody, using number-names.

The image shows a musical score with eight staves of music. Each staff begins with a treble clef. The first four staves are in 2/4 time, while the last four are in 3/4 time. The key signatures vary by staff: the first, second, fourth, fifth, and eighth staves have one sharp; the third staff has two sharps; and the sixth staff has one sharp. Measure numbers are placed above the staves: 1, 2, 3, 4, 5, 6, 7, and 8. The music consists of various note values and rests, typical of a piano or similar instrument.

Another form of scale to be studied is the *Chromatic Scale*.

This is a variation of the diatonic major or minor scale, with all of the whole steps filled in with chromatic half-steps. It is written as follows, in ascending form. The major scale of C is taken as an example.

It will be noticed that all the chromatic intervals are formed by *raising* scale-degrees, with the exception of the note between 6 and 7, which is the lowered seventh degree ($B\flat$), *not* the raised sixth degree ($A\sharp$).

The reason for this is, that B \flat , being the one note which differentiates the key of C from its subdominant key, F, is nearer the key of C *harmonically* than the note A \sharp would be.

The ascending chromatic scale of A flat is written:

And the ascending chromatic scale of B is written:

In every case the major scale is written first; then the half-steps are inserted, as follows: 1, 2, 4, 5 are raised, 7 is lowered.

EXERCISE 218. Write the ascending chromatic scale based on each of the following major scales: D, E, B, A, F, G, D.

The descending chromatic scale is written as follows:

All the chromatic intervals are formed by *lowering* scale-degrees, with the exception of the note between 5 and 4, which is the raised fourth degree (F#), not the lowered fifth degree (Gb).

The reason is again a harmonic one. F#, being the one note that differentiates the key of C from its Dominant key, G, is harmonically nearer the key of C than the note Gb would be.

The descending scale of A flat is written

The major scale is written first, and the chromatic half-steps are inserted as follows: 7, 6, 3, 2 are lowered, 4 is raised.

EXERCISE 219. Write descending chromatic scales based on each of the following major scales: G, D, Bb, F, A, E.

When the chromatic scale is based on a minor scale, it is written with the same chromatic alterations as come in the *relative major*, except that 6 and 7 of the minor scale appear raised, both going up and coming down.

In A minor the chromatic scale is written:

Notice that the Bb (instead of A#) as the first half-step, follows the Bb in the relative scale of C major.

Notice also that the sixth and seventh degrees appear twice, F and F#, G and G#, both going up and coming down.

In other words, write the Pure minor scale, and put in accidentals as follows:

Going up, 2 is lowered, *all* others are raised.

Coming down, 6 and 7 are raised, *all* others are lowered.

EXERCISE 220. Write ascending and descending chromatic scales based on the pure minor scales of C, G and B \flat .

In the chapter on Major scales we found that the scales most nearly related to a central scale were the scales of the Dominant and Subdominant keys. For example, the keys most nearly related to D are the keys of the Dominant, A, and the Subdominant, G.

We can now enlarge our definition of *Related Keys*, to include the *relative* keys of the Tonic and Dominant.

Therefore, the related keys of B \flat Major are its relative minor, G; the Dominant key, F major, and its relative minor, D; and the Subdominant key, E flat, and its relative minor, C.

EXERCISE 221. Write the scales of B flat major, E major and C major, and the five related scales of each. Use harmonic form of minor.

EXERCISE 222. If a composition is written in the key of A major, to what keys will it probably modulate?

The following diagram shows the relative position of the related keys to the central keys of C and of G. A cross is put beside the central key, and the Dominant key and its minor are written above, the Subdominant key and its minor are written below.

V G Major and e Minor.

* I C Major and a Minor.

IV F Major and d Minor.

V D Major and b Minor.

* I G Major and e Minor.

IV C Major and a Minor.

EXERCISE 223. Make a diagram like the above, using each major scale as the central key.

If the central key is *Minor*, the related keys are the relative major; the Dominant key in minor and its relative major; and the Subdominant key in minor and its relative major.

V e Minor and G Major.

* I a Minor and C Major.

IV d Minor and F Major.

V c \sharp Minor and E Major.

* I f \sharp Minor and A Major.

IV b Minor and D Major.

EXERCISE 224. Make a diagram like the above, using each Minor key as the center.

EXERCISE 225. If a composition is written in D minor, to what keys will it probably modulate?

EXERCISE 226. The line of least harmonic resistance from a Major center is to the Dominant Major key; from a Minor center it is to the relative Major key.

What is the line of least resistance from each of the following key-centers?—D major, D minor, B flat major, B flat minor, G sharp minor, E flat minor, D flat major.

CHAPTER TWENTY-TWO

Intervals in the Minor Scale
All Commonly-used Intervals

The pure minor scale, consisting as it does of the same notes as the major scale, contains the same intervals; though they come, of course, between different degrees. For example, the augmented Fourth, F up to B, comes between 4 and 7 in C major, and between 6 and 2 in A minor.



The harmonic minor scale, however, contains four new intervals that do not occur in the major scale. They are the

1. Augmented Second,
2. Diminished Seventh,
3. Diminished Fourth,
4. Augmented Fifth.

1. The *Augmented Second* occurs between the sixth and seventh degrees. In A minor, from F up to G \sharp .

An augmented Second is a chromatic half-step larger than a major Second. F up to G is a major Second; F up to G \sharp is an augmented Second.

2. The *Diminished Seventh* occurs between the seventh and sixth degrees. In A minor, from G \sharp up to F. It is the inversion of the augmented Second.

A diminished Seventh is a half-step smaller than a minor Seventh. G up to F is a minor Seventh; G \sharp up to F is a diminished Seventh.

3. The *Diminished Fourth* occurs between the seventh and third degrees. In A minor, from G \sharp up to C.

A diminished Fourth is a half-step smaller than a perfect Fourth. G up to C is a perfect Fourth; G \sharp up to C is a diminished Fourth.

4. The *Augmented Fifth* occurs between the third and seventh degrees. In A minor, from C up to G \sharp . It is the inversion of the diminished Fourth.

An augmented Fifth is a half-step larger than a perfect Fifth. C up to G is a perfect Fifth; C up to G \sharp is an augmented Fifth.

Of these four intervals, the most important by far is the diminished Seventh. This is used both harmonically and melodically with great frequency. Like all diminished intervals, it tends towards an interval smaller than itself.



EXERCISE 227. Write out the diminished Seventh and its resolution in the following minor keys: B, D, E, F, G, G \sharp , C, B \flat .

To summarize: the following is a complete list of the intervals in the harmonic minor scale.

PRIMES

All Primes are Perfect.

SECONDS

1-2 2-3 3-4 4-5 5-6 6-7 7-1

Major Seconds come between 1-2, 3-4, 4-5.

Minor Seconds come between 2-3, 5-6, 7-1.

Augmented Second comes between 6-7.

THIRDS

1-3 2-4 3-5 4-6 5-7 6-1 7-2

Major Thirds come between 3-5, 5-7, 6-1.

Minor Thirds come between 1-3, 2-4, 4-6, 7-2.

FOURTHS

1-4 2-5 3-6 4-7 5-1 6-2 7-3

Perfect Fourths come between 1-4, 2-5, 3-6, 5-1.

Diminished Fourth between 7-3.

Augmented Fourths between 4-7, 6-2.

FIFTHS

1-5 2-6 3-7 4-1 5-2 6-3 7-4

Perfect Fifths come between 1-5, 4-1, 5-2, 6-3.

Augmented Fifth between 3-7.

Diminished Fifths between 2-6, 7-4.

SIXTHS

1-6 2-7 3-1 4-2 5-3 6-4 7-5

Major Sixths come between 2-7, 3-1, 4-2, 6-4.

Minor Sixths come between 1-6, 5-3, 7-5.

SEVENTHS

1-7 2-1 3-2 4-3 5-4 6-5 7-6

Major Sevenths come between 1-7, 3-2, 6-5.

Minor Sevenths come between 2-1, 4-3, 5-4.

Diminished Sevenths comes between 7-6.

Theoretically, *any* perfect or major interval may be augmented by making it a chromatic half-step larger. If a minor interval is to be augmented, it must first be made major.

Any perfect or minor interval may be diminished by making it a chromatic half-step smaller. If a major interval is to be diminished, it must first be made minor.

Expressed in another way,

Made larger becomes <i>Augmented</i>	<i>Perfect</i> Major-Minor	Made smaller becomes <i>Diminished</i>
-----------------------------------------	-------------------------------	-------------------------------------------

Fifths, for example, which are originally perfect, can therefore be made augmented and diminished.

Sixths, which are originally major, can therefore be made minor, augmented and diminished.

But, the most *usual* augmented intervals are the

Augmented Prime (used melodically),
Augmented Second,
Augmented Fourth,
Augmented Fifth,
Augmented Sixth.

(Not augmented Third or Seventh.)

The most *usual* diminished intervals are the

Diminished Third,
Diminished Fourth,
Diminished Fifth,
Diminished Seventh,

the inversions of the above augmented intervals.

(Not diminished Second or Sixth.)

EXERCISE 228. Write two examples of each of the following:

Augmented Prime, Augmented Second, Augmented Fourth, Augmented Fifth, Augmented Sixth. Diminished Third, Diminished Fourth, Diminished Fifth, Diminished Seventh.

Primes, then, are perfect and augmented.

Seconds are major, minor, augmented.

Thirds are major, minor, diminished.

Fourths are perfect, augmented and diminished (augmented being most frequent).

Fifths are perfect, augmented and diminished (diminished being most frequent).

Sixths are major, minor and augmented (the inversion of thirds).

Sevenths are major, minor and diminished (the inversion of seconds).

Octaves are perfect.

EXERCISE 229.

1. Write two kinds of Primes on C, two on D \flat , two on F.
2. Write three kinds of Seconds on D, three on E \flat , three on C.
3. Write three kinds of Thirds on A \flat , three on B.
4. Write three kinds of Fourths on G, three on F \sharp , three on D.
5. Write three kinds of Fifths on E \flat , three on A.
6. Write three kinds of Sixths on E, three on A \flat .
7. Write three kinds of Sevenths on B, three on D, three on F \sharp .

CHAPTER TWENTY-THREE

Chords and Melodies in Minor

The Triads in the Harmonic minor scale are as follows:



A new kind of triad is the combination C-E-G \sharp , which occurs on the third degree of the scale. It is composed of a major Third and an augmented Fifth and is called an *Augmented Triad*.

It will be noticed that major and minor triads take their names from the kind of *third* that they contain. Diminished and augmented triads take their name from the kind of *fifth* they contain.

In the minor scale, triads occur as follows:

Major triads on V and VI.

Minor triads on I and IV.

Diminished triads on II and VII.

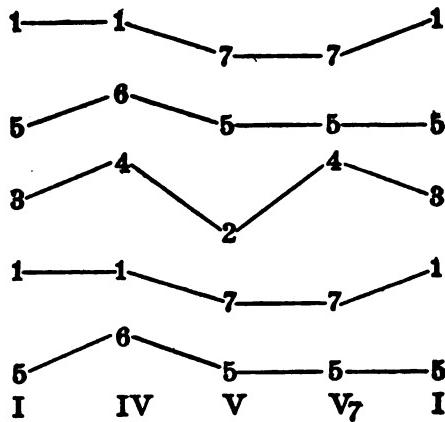
Augmented triad on III.

EXERCISE 230. Write without signature all the triads in the following minor scales: G, B \flat , D, A, E, F. Mark each triad either major, minor, augmented or diminished.

EXERCISE 231. In what two minor keys does each of the following triads occur?



EXERCISE 232. Sing, from the table of broken chords, from each note to each of the others in turn. Also sing each group of three notes in six melodic shapes. Use the harmonic minor, and be careful to sing in tune.



EXERCISE 233. Complete the following broken-chord melodies in minor. Use chords I, IV, V, V \sharp , I.



EXERCISE 234. Write four similar broken-chord melodies in minor.

EXERCISE 235. Sing each voice of the following example, while playing the three other voices. Transpose into other keys:

EXERCISE 236. Play each of the following examples in all minor keys:

$$\begin{matrix} 1 & 1 & 7 \\ I & IV & V \end{matrix} \mid \begin{matrix} 1 \\ I \end{matrix} \parallel$$

$$\begin{matrix} 3 & 4 & 2 \\ I & IV & V \end{matrix} \mid \begin{matrix} 3 \\ I \end{matrix} \parallel$$

$$\begin{matrix} 5 & 1 & 1 \\ I & I \end{matrix} \mid \begin{matrix} 1 & 7 \\ IV & V \end{matrix} \mid \begin{matrix} 1 \\ I \end{matrix} \parallel$$

EXERCISE 237. Sing each of the following melodies slowly. Then sing each melody-note and the two nearest chord-notes below it.

EXERCISE 238. Sing the following melodies in minor in the way directed in the previous exercise.

$$\begin{matrix} 1 & 1 & | & 1 & || & 3 & 4 & | & 3 & || & 1 & 1 & 7 & | & 1 & || & 1 & 1 & | & 7 & 7 & | & 1 & || \\ 3 & 1 & | & 1 & 7 & | & 1 & || & 1 & 3 & | & 5 & 6 & | & 5 & || \end{matrix}$$

EXERCISE 239. Play the following chord-successions in a number of minor keys. Roots are to be played in the left hand, three-note chords in the right. Observe all the rules of chord-succession that obtain in the major mode.

$$\begin{matrix} 1 & I & IV & V & | & I & || \\ 2 & I & IV & V & V, & | & I & || \\ 3 & I & IV & | & I & I & | & IV & V & | & I & || \\ 4 & I & I & | & V & I & | & IV & IV & | & I & || \end{matrix}$$

EXERCISE 240. Write the following exercises in a number of minor keys, varying the position of the upper voices.

$$\begin{matrix} 1 & I & I & | & IV & I & | & IV & IV & | & V \\ I & I & IV & | & I & I & | & IV & V, & | & I & || \\ 2 & I & IV & I & | & IV-IV & | & I-I & V & | & V & | & I & || \\ V & V, & I & | & IV-I & | & IV & V & V, & | & I & || \end{matrix}$$

EXERCISE 241. The triad D-F#-A is I of D major, IV of A major, V of G major, V of G minor, and VI of F# minor. In what five keys does each of the following triads belong: A-C#-E, Bb-D-F, G-B-D, F-A-C?

EXERCISE 242. Study the following minor melodies. Cancel the non-harmonic notes. Write the harmonic background and play the accompanying chords.

The image shows three staves of musical notation. Staff 1 starts with a treble clef, a key signature of one flat (B-flat), and a common time signature. Staff 2 starts with a treble clef, a key signature of one sharp (F-sharp), and a common time signature. Staff 3 starts with a treble clef, a key signature of one sharp (F-sharp), and a common time signature.

EXERCISE 243. In what key or keys is each of the following melodic fragments? They are written purposely without key-signatures. The student must decide the key of each, by the harmonic contour of the melody, and by the position of the keynote in relation to the other melody-notes.

The image shows nine staves of melodic fragments, each labeled with a number. Staff 1 starts with a treble clef and a common time signature. Staff 2 starts with a treble clef and a common time signature. Staff 3 starts with a treble clef and a common time signature. Staff 4 starts with a treble clef and a common time signature. Staff 5 starts with a treble clef and a common time signature. Staff 6 starts with a treble clef and a common time signature. Staff 7 starts with a treble clef and a common time signature. Staff 8 starts with a treble clef and a common time signature. Staff 9 starts with a treble clef and a common time signature.

EXERCISE 244. Play the soprano of the following exercises while singing the alto:

The image shows three staves of musical notation. The top staff starts with a treble clef and a common time signature. The middle staff starts with a treble clef and a common time signature. The bottom staff starts with a treble clef and a common time signature.

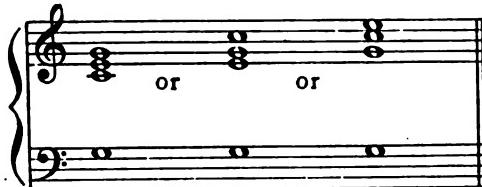
CHAPTER TWENTY-FOUR

The Six-Four Chord

We now come to a new development in chord-structure. This is called *Inversion*.

A chord is inverted when any note other than the root is in the bass. We will study first an inverted chord that is very frequently used.

The notes composing this chord are those of the Tonic triad; that is, 1, 3, 5; but the *bass note* is 5, not 1. In the key of C the chord is:



This chord takes its name, *Chord of the Sixth and Fourth*, or *Six-Four Chord* from the intervals of which it is composed. In the following illustration the intervals are a *sixth* from the bass note G up to the note E, and a *fourth* from the bass note

G up to the note C. The bass note itself, G, is doubled.



This chord is most frequently used on the strong beat of the measure, to precede either the Dominant triad, or the Dominant Seventh-chord, at the cadence.



The complete name of this chord is the Tonic Six-Four Chord, or One Six-Four (I_4^6). The rhythmic position which we are now discussing is called "The Cadential Use of the Tonic Six-Four Chord."

This chord has none of the character of rest that the tonic triad has when its *root* is in the bass. On the contrary, it expresses even more motion than does either the Dominant triad or Dominant Seventh-chord.

The strongest note of the chord is the *bass*, which is therefore doubled. The two other notes, the sixth and fourth, have the character of non-harmonic notes. They are not doubled, and each resolves to the nearest note of the Dominant triad, or

Dominant Seventh-chord, as follows:

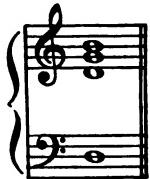


In resolving to the Dominant triad, the sixth of the I₆ chord (E) descends to the fifth of the triad (D), and the fourth of the I₆ chord (C) descends to the third of the triad (B). The common tone (G) remains in the same voice.

In resolving to the Dominant Seventh-chord, the fourth of the I₆ chord (C) and the common tone (G) move as before, and the sixth of the I₆ chord (E) moves *up* to the seventh of the Dominant Seventh-chord (F).

Always spell this chord from the root, then state the bass note.

Example:



is spelt "G, B, D, *on* D."



is spelt "A, C#, E, *on* E"

This chord is used both in Major and Minor.

EXERCISE 245. Recite the spelling of the I₆ chord in all Major and Minor keys.

When singing the bass of this chord, sing the pitch of 5, not the pitch of 1. In other words, do not sing the root, but the fifth. In the following example, for



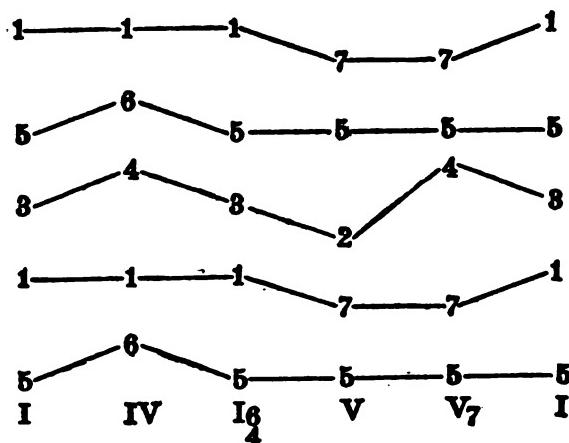
instance, sing the chord-name, "One Six-Four," at the pitch of A:

EXERCISE 246. Play the following example in several keys, while singing

the bass-line.

I IV I ₆/₄ V I

The notes of the Six-Four chord are the same as those of the Tonic triad, so they will appear in the table of broken chords as shown below. It is best to play the bass-line on the piano while singing from the broken-chord table, in order to get clearly the difference in feeling between the tones in the Tonic triad, with 1 in the bass, and the tones in the Six-Four chord, with 5 in the bass.



EXERCISE 247. Sing from the above table while playing bass-line with left hand.

EXERCISE 248. Play the following chord successions in all keys. Practise singing each voice in turn while playing the other three voices.

EXERCISE 249. Sing each melody-note and the two nearest chord-notes below it:

1	1	1	1	7	1		8	4	8	2	8		5	6	15	5	15			
	1	3	5	11	4	6	15	3	2	18			8	1	1	1	7	7	1	

EXERCISE 250. Write the following chord-successions in a number of major and minor keys, varying the position of the upper voices:

1	I	I		IV	IV		I	I		V	
	V, V, V, V, V, V,			I	IV		I⁶₄	V, V, V, V, V, V,		I	
2	I	I		IV	IV		I⁶₄	I⁶₄		V	
	I	I		IV	I		I⁶₄	V, V, V, V, V, V,		I	

EXERCISE 251. Study the following melodies. Cancel the non-harmonic notes, and write the harmonic background. Play accompanying chords.



EXERCISE 252. Harmonize the following melodies for four voices, in close position:



EXERCISE 253. Analyze the following pieces containing I_4^6 ; supply bars and meter-signs if they are lacking. Decide keys. Write list of chords as explained in previous exercises. In some of the pieces the chord I appears with 3 in the bass. For the present, figure this chord I, but indicate the figuring of I_4^6 , where I appears, with 5 in the bass.

In Example 4, d, in the bass, of the fourth measure, is a non-harmonic note where cancelled.

Four musical staves. Staff 1 (top) and Staff 2 (second from top) are in common time, Staff 3 (third from top) is in common time, and Staff 4 (bottom) is in common time. Each staff consists of two systems of music.

3

Musical staff 3 consists of two staves. The top staff is treble clef, G major (two sharps), common time. It features a continuous eighth-note pattern. The bottom staff is bass clef, G major (two sharps), common time. It features quarter notes and eighth-note pairs.

Musical staff 4 consists of two staves. The top staff is treble clef, G major (two sharps), common time. It features a continuous eighth-note pattern. The bottom staff is bass clef, G major (two sharps), common time. It features quarter notes and eighth-note pairs.

4

Musical staff 5 consists of two staves. The top staff is treble clef, G major (two sharps), common time. It features a continuous eighth-note pattern. The bottom staff is bass clef, G major (two sharps), common time. It features quarter notes and eighth-note pairs.

Musical staff 6 consists of two staves. The top staff is treble clef, G major (two sharps), common time. It features a continuous eighth-note pattern. The bottom staff is bass clef, G major (two sharps), common time. It features quarter notes and eighth-note pairs.

5

Musical staff 7 consists of two staves. The top staff is treble clef, G major (two sharps), common time. It features a continuous eighth-note pattern. The bottom staff is bass clef, G major (two sharps), common time. It features quarter notes and eighth-note pairs.

Musical staff 8 consists of two staves. The top staff is treble clef, G major (two sharps), common time. It features a continuous eighth-note pattern. The bottom staff is bass clef, G major (two sharps), common time. It features quarter notes and eighth-note pairs.

CHAPTER TWENTY-FIVE

The Supertonic Triad and Its First Inversion

The *Supertonic Triad* is built on the second degree of the scale. The numbers are 2-4-6.

In the major scale this triad is minor. In C major the notes are D-F-A. In the minor scale this triad is diminished. In C minor the notes are D-F-A flat.

EXERCISE 254. Recite the notes of the Supertonic Triad in all major and minor keys.

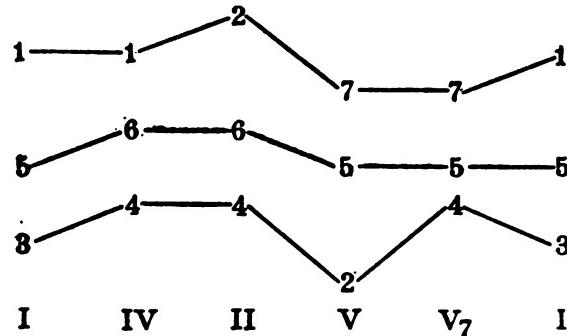
The numbers of this chord arranged in a column, showing the three positions, appear as follows:

2
6
4
2
6
II

EXERCISE 255. Sing from each number in the above column to each of the others in turn.

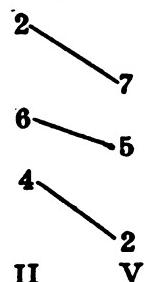
EXERCISE 256. Write the notes of each of the three positions of this chord in six melodic shapes, in the keys of F major and E minor.

EXERCISE 257. Sing the following groups up, down and across, as explained in previous exercises.



It will be noticed that there is a common tone, the note 2, between chords II

and V, and that this note is *not* repeated in the same voice.



For example, in the key of C,  does not go to  with 2 in the soprano of both chords. It resolves as follows:  the notes of chord

II moving *down* to the nearest notes of chord V, 2 moving down to 7.

The reason is, that if 2 (in C, the note D) is repeated in the same voice, the other two voices 4 and 6 (in C, the notes F and A) are forced to move to 5 and 7 respectively (in C, the notes G and B). 

This is a poor progression. Both intervals, F-A and G-B, are the same size; that is, each is a major Third. The effect is something the same as that of two perfect Fifths following each other. Play the following pairs of intervals very slowly,

and listen to this similarity of the *size* of the intervals.



Both are to be avoided, not because they sound harsh and dissonant, but because they sound too consonant and uninteresting. Compare the last illustration with the following, where the second of the two Thirds is minor, and the second of the two Fifths is diminished.  The last two illustrations are excellent voice-leading.

There is another reason for avoiding this progression:  The distance from the lower note of the first Third, F, up to the higher note of the second Third, B, is three whole steps. This is called a *Tritone*.



The tritone is uninteresting *melodically*, because the distance between each two notes is the same—a whole step in each case. Also, in the first example, 4 moves up to 5, contrary to its more usual tendency to go down to 3; and in the second example, 7 moves down to 6, contrary to its more usual tendency to move up to 1.

The progression is equally poor *harmonically* when it comes between *two voices*:



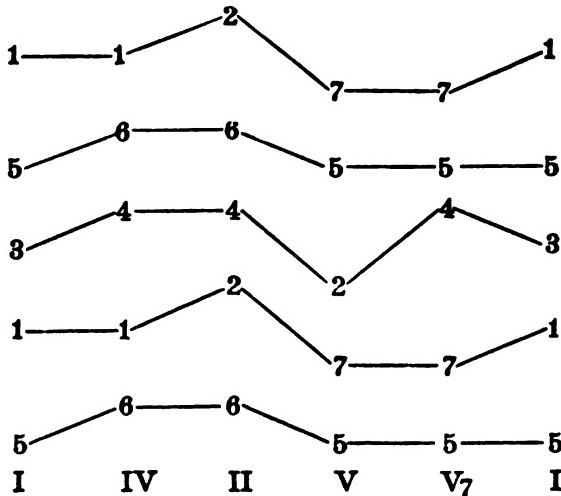
because the ear feels the contradiction of the *probable* resolution of 4 and of 7.

It may be well to state that the progression from *7 up* to *4*, or from *4 down* to *7* is *not* a tritone, and is excellent melodically.



The distances between the adjoining notes, instead of being whole steps, are now a half-step b-c, a whole step c-d, a whole step d-e, and a half-step e-f.

The following is the broken-chord table of chords I IV II V V₇, I

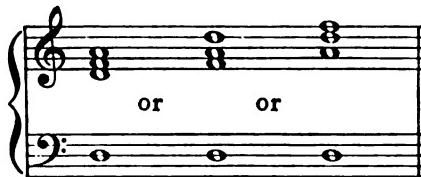


EXERCISE 258. Complete the following broken-chord melodies, using the chords I, IV, II, V, V₇, I. Follow the voice-leading indicated in the broken-chord table given above, and be careful, in going from II to V, to move the upper voices to the next lower position of V.



EXERCISE 259. Write three similar broken-chord exercises in major and three in minor.

The chord II is treated harmonically as follows, with the root in the bass:



In minor, the chord II, being a Diminished triad, is seldom used with its root in the bass. Later in this Chapter we shall use the chord in minor, but in a different form. The following exercises are to be done in major only.

EXERCISE 260. Play the following examples in all major keys, while singing one of the voices. Notice that II in these exercises is preceded by IV, and is followed

by one of the Dominant chords, V or V_7 , or by the I_4^6 chord, which has strong Dominant feeling.

The image contains three staves of music, each with two voices (treble and bass). Staff 1 shows a progression from II to I_4^6 in G major (two sharps). Staff 2 shows a progression from II to V in C major (no sharps or flats). Staff 3 shows a progression from II to V_7 in F major (one flat).

In the following example, II follows I. There is no common tone between triads on adjoining degrees; so, in this case, the notes of I move to the notes of II in the position *below*. It is the same relative progression as that of chord IV progressing to chord V, where the upper voices move down.

A musical staff with two voices (treble and bass) showing a progression from I to II to V to I. The bass line moves from A to D, then to G, then to E, then back to A. The treble line moves from E to B, then to F, then to C, then back to E.

EXERCISE 261. Play the above example in all keys.

EXERCISE 262. Write the following chord exercises in several keys, varying the position of the upper voices. Observe the following:

1. If chord changes, keep common tone in same voice, except,
2. In moving from II to V, disregard keeping common tone in same voice, and move all three upper voices *down*, to avoid Tritone.
3. In progression II-V₇, common tone 4 is kept in same voice.
4. If there is no common tone, as in progressions IV-V and I-II, move upper voices contrary to bass.
5. If chord repeats, change position of upper voices.

1 I I | IV I | II II | V **2** I IV I | V-V₇ | I I II | V
I IV | I II | V V₇ | I || I III | IV I IV | V V V₇ | I ||

The progression II-I₄⁶ is poor *in the following position:*

on

account of the two fifths following each other. Avoid this position, choosing either of the other two positions. That is, avoid II I₄⁶ with soprano 6-5, and use with soprano 2-1 or 4-3.

EXERCISE 263. Write two balanced chord-phrases introducing chord II. End first phrase on V, and end second phrase on I.

EXERCISE 264. Play the following in all major keys:

3	4	4	2	3	1	7
I	IV	II	V	I	I	V
1	5	3	2	1	7	1
I	I	I	II	I ₄ ⁶	V	I

To summarize:

I can be followed by any chord:

Common tone 1 between I and IV.

Common tone 5 between I and V.

Common tone 5 between I and V₇.

Common tones 1, 3 and 5 between I and I₄⁶.

No common tone between I and II. Upper voices move down.

V can be followed by I or V₇:

Common tone 5 between V and I.

Common tones 5 and 7 between V and V₇.

V₇ can be followed by I:

Common tone 5 between V₇ and I.

IV can be followed by I, V, V₇, I₄⁶, II:

Common tone 1 between IV and I.

No common tone between IV and V. Upper voices move down.

Common tone 4 between IV and V₇.

Common tone 1 between IV and I₄⁶.

Common tones 4 and 6 between IV and II.

II can be followed by V V₇:

Common tone 2 between II and V disregarded. Upper voices move down.

Common tone 4 between II and V₇.

No common tone between II and I₄⁶. Avoid progression with 6 in soprano of II and 5 in soprano of I₄⁶. Upper voices move down.

I₄⁶ can be followed by V and V₇:

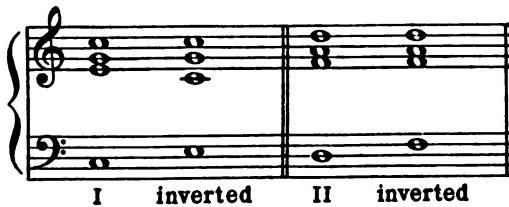
Common tone is 5 in each case.

EXERCISE 265. Write the harmonization of the following melodies. Place the two nearest harmonic notes beneath each melody-note, roots in the bass. Sing the pitch of each note while you write it. When written, sing each voice across, while playing the other three voices.

1. 5 1 1 1 2 1 7 7 1 1 //
2. 1 3 1 4 4 1 4 7 1 1 //
3. 3 5 1 6 6 1 5 5 1 5 //
4. 5 1 3 1 4 - 4 1 3 1 7 1 1 //
5. 5 6 5 1 4 - 4 1 3 //

In the chapter on the Six-Four Chord, we found the notes of the Tonic triad with the *fifth* in the bass. Another inverted chord that is very frequently used is chord II with its *third* in the bass.

The third of *any* triad may be placed in the bass; for example:



This first inversion of the triad, with the third in the bass, is called the *Chord of the Sixth*.

The sixth is the distance from the bass of the chord up to the root.

In the first example above, from the bass, E, up to the root, C, is a sixth, and the chord is figured I₆.

In the second example, from the bass, F, up to the root, D, is a sixth, and the chord is figured II₆. The other interval above the bass in a chord of the Sixth is a third; so this chord is sometimes indicated with the figures of both intervals, I₆, II₆, etc.

The figure 6, when written to the right of a Roman numeral, shows that the third of the Triad is in the bass.

These chords are spelt as follows. In the key of C:

I	= C-E-G.
I ₆	= C-E-G on E
II	= D-F-A.
II ₆	= D-F-A on F
III	= E-G-B.
III ₆	= E-G-B on G

and so on.

When the three principal triads (that is, I, IV and V) are inverted, the third of each chord (now the bass note), being the weakest note of the chord, is *not* doubled. The inversion of these chords will be discussed in a later volume.

The chord which concerns us now, is the very usual first inversion of the Supertonic triad.

This chord, as we know, is composed of the notes 2-4-6. In a key, 4 is a stronger, more characteristic note than either 2 or 6. Therefore, we may double this note in



the first inversion of the chord. It will usually appear as follows:

The chord is D-F-A on F; and F (the third of the chord) is doubled.

Another reason for doubling the third of chord II₆ instead of doubling its root, is that chord II is the relative minor of chord IV. Chord IV is one of the three principal triads of the key, and its most characteristic note is 4. Chord II has much of the Subdominant feeling (some theorists call it a substitute for IV), and this Subdominant feeling can be intensified by doubling the note 4.

The two positions of II₆ that sound well are:



The other position,



with 4 in the center of the upper voices,

sounds thick and is to be avoided.

The II₆ chord is used in minor as well as in major.

EXERCISE 266. Play the following examples in all major and minor keys. Sing the bass-line while playing chords, being careful to sing the bass of "Two-six" at the pitch of scale-degree 4. Notice that in the second example the voices move *up* from I to II₆. The effect is very similar to the progression I-IV in the first cadence, though softer.

EXERCISE 267. Write a similar chord-progression in D major, and one in E minor. Make each exercise four or eight measures long, and introduce chord II_6 in each.

EXERCISE 268. Play this chord-succession in all keys, going from one key to the next in perfect rhythm. Keys C to F sharp, and G flat to C.

$\dot{\text{I}}$ $\dot{\text{IV}}$ $\dot{\text{II}}_6$ | $\dot{\text{I}}_4^6$ $\dot{\text{V}}$ $\dot{\text{V}}_7$ | $\dot{\text{I}}$ ||

EXERCISE 269. The following melodies illustrate the use of chord II. The Supertonic chord (II or II_6) appears prominently as the appropriate harmony in at least one measure of each melody.

1. Play the melody and the bass-line.
2. Cancel non-harmonic notes in the melody.
3. Play the melody (omitting non-harmonic notes) and the bass-line.
4. Sing the melody, while playing the bass-line.
5. Play the melody, while singing the bass-line an octave higher.
6. Play the accompanying chords, using the position given in the last exercise, while singing the melody.

The image contains five separate musical staves, each labeled with a number (1, 2, 3, 4, or 5) above it. Each staff consists of a treble clef, a key signature, and a time signature. The melodic line is represented by short vertical stems with small horizontal dashes indicating pitch and rhythm. Below the melody, there are additional stems and dashes representing harmonic bass notes. Staff 1 starts in A major (no sharps or flats). Staff 2 starts in E major (one sharp). Staff 3 starts in D major (two sharps). Staff 4 starts in G major (one sharp). Staff 5 starts in C major (no sharps or flats).

EXERCISE 270. Write out the following in several major and minor keys:

I I | IV IV | I_4^6 I_4^6 | V
I IV | II II_6 | V V_7 | I ||

EXERCISE 271. Analyze the following pieces containing II or II_6 . Supply bars and meter signs if they are lacking. Decide keys. Write spelling of chords. Cancel non-harmonic notes. If the third of the II is in the bass, mark it II_6 . If any other chords, except II_6 and I_4^6 , appear in inverted form, mark the Roman numeral of the root only. The figuring for all inversions of chords will be studied later.

1

2

3

4

5

6

7

8

A page of sheet music for piano, featuring two staves. The top staff uses a treble clef and the bottom staff uses a bass clef. The key signature is one sharp (F#). Measure 5 begins with eighth-note chords in the treble staff, followed by eighth-note patterns in both staves. Measure 6 begins with quarter notes in the treble staff, followed by eighth-note patterns in both staves.

7



Treble staff: G A B C D E G A B C D E
Bass staff: D F G A C D D F G A C D



Treble staff: G A B C D E G A B C D E
Bass staff: D F G A C D D F G A C D

8



Treble staff: G A B C D E G A B C D E
Bass staff: D F G A C D D F G A C D



Treble staff: G A B C D E G A B C D E
Bass staff: D F G A C D D F G A C D

9



Treble staff: G A B C D E G A B C D E
Bass staff: D F G A C D D F G A C D



Treble staff: G A B C D E G A B C D E
Bass staff: D F G A C D D F G A C D

10

Musical score for piano, page 10, measures 10-11. The score consists of two staves: treble and bass. The key signature is one sharp (F# major). Measure 10 starts with a half note in the treble staff followed by eighth-note chords in the right hand and eighth-note patterns in the bass. Measure 11 begins with a half note in the treble staff, followed by eighth-note chords in the right hand and eighth-note patterns in the bass.

Continuation of the musical score for piano, page 10, measures 10-11. The score consists of two staves: treble and bass. The key signature is one sharp (F# major). Measure 10 continues with eighth-note chords in the right hand and eighth-note patterns in the bass. Measure 11 begins with a half note in the treble staff, followed by eighth-note chords in the right hand and eighth-note patterns in the bass.

Continuation of the musical score for piano, page 10, measures 10-11. The score consists of two staves: treble and bass. The key signature is one sharp (F# major). Measure 10 continues with eighth-note chords in the right hand and eighth-note patterns in the bass. Measure 11 begins with a half note in the treble staff, followed by eighth-note chords in the right hand and eighth-note patterns in the bass.

11

Musical score for piano, page 11, measures 11-12. The score consists of two staves: treble and bass. The key signature is one sharp (F# major). Measure 11 starts with a half note in the treble staff followed by eighth-note chords in the right hand and eighth-note patterns in the bass. Measure 12 begins with a half note in the treble staff, followed by eighth-note chords in the right hand and eighth-note patterns in the bass.

Continuation of the musical score for piano, page 11, measures 11-12. The score consists of two staves: treble and bass. The key signature is one sharp (F# major). Measure 11 continues with eighth-note chords in the right hand and eighth-note patterns in the bass. Measure 12 begins with a half note in the treble staff, followed by eighth-note chords in the right hand and eighth-note patterns in the bass.

12

Musical score for measure 12. The top staff is treble clef, 2/4 time, key signature of one sharp. The bottom staff is bass clef, 2/4 time, key signature of one sharp. The melody consists of eighth-note chords: G-B-D, G-B-D, G-B-D, G-B-D, G-B-D. The bass line consists of quarter notes: D, E, D, E, D, E.

Musical score for measure 13. The top staff is treble clef, 2/4 time, key signature of one sharp. The bottom staff is bass clef, 2/4 time, key signature of one sharp. The melody consists of eighth-note chords: G-B-D, G-B-D, G-B-D, G-B-D, G-B-D. The bass line consists of quarter notes: D, E, D, E, D, E.

13

Musical score for measure 14. The top staff is treble clef, 2/4 time, key signature of one sharp. The bottom staff is bass clef, 2/4 time, key signature of one sharp. The melody consists of eighth-note chords: G-B-D, G-B-D, G-B-D, G-B-D, G-B-D. The bass line consists of quarter notes: D, E, D, E, D, E.

Musical score for measure 15. The top staff is treble clef, 2/4 time, key signature of one sharp. The bottom staff is bass clef, 2/4 time, key signature of one sharp. The melody consists of eighth-note chords: G-B-D, G-B-D, G-B-D, G-B-D, G-B-D. The bass line consists of quarter notes: D, E, D, E, D, E.

14

Musical score for measure 16. The top staff is treble clef, 2/4 time, key signature of one sharp. The bottom staff is bass clef, 2/4 time, key signature of one sharp. The melody consists of eighth-note chords: G-B-D, G-B-D, G-B-D, G-B-D, G-B-D. The bass line consists of quarter notes: D, E, D, E, D, E.

Musical score for measure 17. The top staff is treble clef, 2/4 time, key signature of one sharp. The bottom staff is bass clef, 2/4 time, key signature of one sharp. The melody consists of eighth-note chords: G-B-D, G-B-D, G-B-D, G-B-D, G-B-D. The bass line consists of quarter notes: D, E, D, E, D, E.

Musical score for measure 18. The top staff is treble clef, 2/4 time, key signature of one sharp. The bottom staff is bass clef, 2/4 time, key signature of one sharp. The melody consists of eighth-note chords: G-B-D, G-B-D, G-B-D, G-B-D, G-B-D. The bass line consists of quarter notes: D, E, D, E, D, E.

CHAPTER TWENTY-SIX

Review

CHAPTER ONE. RHYTHMIC DESIGN.

- 1.** Write the rhythmic design of each of the following words:

Important	Impossible
Cadence	Musical
Experience	Undone
Pupil	Require
Conclusion	Dominant
Conciliate	Supported
Interval	Pictorial
Misunderstand	Necessity
Problematic	Possible
Development	Recognizing
Intellect	Intelligent
Explain	Presented
Immune	Explanation
Beauty	Happily
Successful	Relief

- 2.** Quote two measures of a melody in each of the following rhythmic designs:

1 2, 2 | 1, | 1 2 3, 3 | 1 2, | 1 2 3 4, 4 | 1 2 3, 3 4 | 1 2

- 3.** What is the rhythmic design of

Yankee Doodle,
Home, Sweet Home,
My Bonnie Lies Over the Ocean?

- 4.** Does the same rhythmic design continue throughout an entire composition?

CHAPTER TWO. PHRASING.

- 1.** Put bars in the following lines of poetry, and write note-values beneath the syllables. State rhythmic design:

1. This is the forest primeval.
2. On either side the river lie
Long fields of barley and of rye.
3. Ever let the Fancy roam,
Pleasure never is at home.
4. The year's at the spring,
And day's at the morn.
5. Now folds the lily all her sweetness up,
And slips into the bosom of the lake.

2. Mark phrasing in the following melodies:

CHAPTER THREE. MAJOR SCALES AND SIGNATURES.

1. What is a scale?
2. How many kinds of half-step are there? Illustrate on piano.
3. What is a key?
4. What is a tetrachord?
5. Name the sharp scales.
6. Name the flat scales.
7. What does signature mean?
8. What are the signatures of the following Major Scales: B_b, D, D_b, G, G_b, C, C_#, C_b, G_b, B, D_b?
9. Write the signature of the above scales in treble and bass clefs.
10. What major keys use the following signatures: 6_#, 2_b, 2_#, 4_#, 4_b, 5_#, 5_b, 6_b, 7_b, 7_#, 3_b, 3_#?
11. Recite the notes of each major scale in this order: 1-7-6-5-4-3-2-1.
12. Recite the notes of each major scale one octave, beginning on 5 and ending on 5 above; that is, 5-6-7-1-2-3-4-5. In the key of D the notes are A-B-C_#-D-E-F_#-G-A.
13. Recite the notes of each major scale one octave from 4 down to 4.
14. Recite the notes of each major scale one octave from 3 up to 3.
15. The note C is 1 of the key of C. Recite this scale one octave from 1 up to 1.
C is 2 of B_b. Recite this scale one octave from 2 up to 2.
C is 3 of A_b. Recite this scale one octave from 3 up to 3.
C is 4 of G. Recite this scale one octave from 4 up to 4.
C is 5 of F. Recite this scale one octave from 5 up to 5.
C is 6 of E_b. Recite this scale one octave from 6 up to 6.
C is 7 of D_b. Recite this scale one octave from 7 up to 7.
16. In the same manner, recite the seven scales in which the note G occurs. In each case begin and end on G.

17. Write the seven scales in which the note A occurs. Begin and end each scale on its own keynote.
18. 7 of D is 3 of a scale whose signature is—?
19. 5 of B flat is 3 of a scale whose keynote changed enharmonically is 6 of—?
20. 7 of the key of A flat is 2 of—?
21. Recite the *names* of the seven scale-steps.
22. In what two scales does each of the following tetrachords occur D \flat -E \flat -F-G \flat , A-B-C \sharp -D, F \sharp -G \sharp -A \sharp -B.
23. Place the note G \sharp (or A \flat) in seven scales.
24. Name the Mediant and the Submediant in each of the following keys: A \flat , G, E \flat , F \sharp , D.
25. The Leading-tone in each of the following keys is the Supertonic of what key? G, A \flat , E, B \flat .
26. The Dominant of G is the Subdominant of a key whose leading-tone is—?

CHAPTERS FOUR AND SEVEN. TIME-VALUES.

1. What three symbols express time-values in music?
2. What is meant by meter-sign?
3. Write an example of each of the following:

Quarter-note,
Half-rest,
Whole-measure rest,
Eighth-dot (two ways),
Sixteenth-note,
Quarter-dot (two ways).

4. Write ten examples of time-values in $\frac{3}{4}$ meter, and recite the values in each example.
5. Complete the following measures, using notes, rests, or dots.

$\frac{3}{4}$	$\frac{4}{4}$	$\frac{2}{4}$	$\frac{6}{8}$
			
			
			

6. What is the difference between simple meter and compound meter?
7. Write a list of the simple meter-signs.
8. Write a list of the compound meter-signs.
9. Quote two measures of some melody in each of the following meters:

2 9 6 12 4 3
4 8 8 8 4 4

10. What is the unit of beat in each of the following meters:

9 3 3 4 12 6
8 4 8 4 8 8

11. What is the principal rhythmic difference between a slow piece in $\frac{6}{8}$ meter, and a fast piece in the same meter?
 12. Copy and complete the following measures:



13. Write each of the following measures in note-values of the next larger and also of the next smaller denomination:



14. Which of the following examples are in $\frac{6}{8}$ meter and which are in $\frac{3}{4}$ meter? Why?



15. Correct the following (supposed to be complete measures):



16. Put bars and meter-signs in the following:



CHAPTER EIGHT. INTERVALS.

1. What is an interval?
 2. What is inversion?
 3. Define and illustrate each of the following:

A major interval,
 A minor interval,
 A perfect interval,
 An augmented interval,
 A diminished interval.

4. How many intervals occur in the major scale? Enumerate them.
5. Define and illustrate a perfect consonance, an imperfect consonance, a dissonance.
6. What does resolution mean?
7. What is the peculiar quality of the interval 4 up to 7? Why has it this quality?
8. Name the following intervals:

All major Thirds in the key of E flat,
 All minor Sixths in the key of B flat,
 All major Sixths in the key of D,
 All minor Seconds in the key of G.

9. What is the difference between a melodic interval and a harmonic interval?
10. Name the melodic intervals in the following melody:



11. Which of the following intervals is a Fourth, and why? C up to F#, or C up to Gb?
12. Augment the following intervals:

C# up to F #,
 G up to C,
 Db down to Ab.

13. Invert each of the above and name the inversion.
14. Begin on F, major Third down, perfect Fourth up, minor Third up, change enharmonically, is mediant of a key, whose Dominant triad is—? *Answer, C-E-G.*
15. Classify the following intervals in all major keys in which each occurs:



16. Write a chain-question on intervals; 10 items long.

CHAPTER NINE. OVERTONES.

1. What have overtones to do with the study of Melody?
2. Why is the understanding of overtones necessary to the study of Harmony?
3. Demonstrate on the piano the presence of overtones by means of sympathetic vibration.
4. The fundamental vibration of the tone  is 32 times a second.

How many times a second does each of the first seven overtones vibrate?

CHAPTER TEN. MELODIC IDIOMS.

1. What is meant by the term Melodic Idiom?
2. Melodic idioms frequently are composed of the notes of a broken chord. Write 5 such idioms.
3. Melodic idioms are frequently based on tonal magnetism. Write 5 such idioms.
4. Which of the following groups are "idiomatic," and which are not?

1-4-3, 5-2-6, 3-7-6, 6-7-1,
1-3-5-6-3, 3-6-5-7-1.

5. Sing and write 6 idioms introducing the fourth degree of the scale.
6. Write an "idiomatic" melody in each of the following rhythmic outlines; that is, use these note-values. Write in the key of G.



CHAPTER TWELVE. TRIADS IN THE MAJOR SCALE.

1. What intervals form a Triad?
2. How are Triads figured?
3. What is indicated by the figure 4? What by the figure IV?
4. How many kinds of triad occur in the Major Scale?
5. Recite all triads in D \flat Major; state the kind of triad that each is.
6. The Dominant Triad of A is also the Subdominant Triad of what key?
7. In what three Major keys does the Triad E \flat -G-B \flat occur?
8. Write each of the following Triads in the bass clef, then rewrite, changing the mode of each. D-F \sharp -A, B \flat -D \flat -F, A \flat -C-E \flat , G \sharp -B-D \sharp .
9. Write a Diminished Triad on each of the following root-notes: E, B, G \sharp , C \sharp . In what key does each occur?
10. Write a major, a minor, and a diminished triad on each of the following root-notes: F, B \flat , A, D.
11. The Triad on the second scale-degree of the key of C occurs also on the sixth scale-degree of what key?

CHAPTER THIRTEEN. TONIC AND DOMINANT TRIADS, AND DOMINANT SEVENTH-CHORD, USED IN VARIOUS WAYS.

1. Sing harmonization of the following melodies, singing the two nearest chord-notes beneath each melody-note. Use only the Tonic and Dominant Triads.



2. Write the Perfect Authentic Cadence in A flat and in E.
3. Write an Imperfect Authentic Cadence in E flat and in B.
4. Sing the following chords down vertically, using number-names:



5. Write a chord-phrase in G major based on this succession:

I-IV-I-V,-I.

6. Sing the following broken chords and the resolution of each. Use number-names.

Keep the same melodic shape in the resolution as in the chord.

CHAPTER SIXTEEN. NON-HARMONIC NOTES.

1. What are non-harmonic notes?
2. Rewrite the following melody, introducing non-harmonic notes:



3. Rewrite the following melody several ways, introducing different non-harmonic notes in each version:



4. The following is the melodic outline of a familiar melody. What is the melody? Rewrite it as it is usually sung:



CHAPTER SEVENTEEN.

1. Analyze the following pieces, which are harmonized with the chords I V V₇:

The image contains four separate musical staves, each with two systems of music. Staff 1 (top) has a treble clef, a key signature of one sharp (F#), and a 2/4 time signature. Staff 2 (second from top) has a treble clef, a key signature of one sharp (F#), and a 2/4 time signature. Staff 3 (third from top) has a treble clef, a key signature of one sharp (F#), and a 3/8 time signature. Staff 4 (bottom) has a treble clef, a key signature of one sharp (F#), and a 3/8 time signature. Measure 1 of staff 1 starts with a forte dynamic (mf). Measure 2 starts with a piano dynamic (p). Staff 2 includes dynamics "cresc." and "fritard." in measure 2. Staff 3 includes a dynamic "p" in measure 1. Staff 4 includes a dynamic "cresc." in measure 2.

CHAPTER EIGHTEEN. SUBDOMINANT TRIAD.

1. Sing harmonization of the following melodies, singing the two nearest chord-notes beneath each melody-note.

|1 1 | 1 5 | 6 5 | 5.
|3 5 | 6 4 | 3 4 | 3.
|1 3 5 | 6 4 6 | 5 5 7 | 1.
|1 3 | 4 4 | 3 4 | 3.

2. Write altos to the following sopranos:

The image shows two soprano melodic lines. Line 1 (top) consists of eighth notes and sixteenth notes. Line 2 (bottom) consists of eighth notes and sixteenth notes. Both lines are in G major, 2/4 time.

3. Write the accompaniment to the following melody:



4. Analyze the following piece:

A musical score for piano, consisting of two staves. The top staff is in G major (one sharp) and the bottom staff is in F major (one sharp). The score includes dynamics (p, pp) and measure numbers (1, 2, 3, 4).

A continuation of the musical score for piano, starting at measure 5. The top staff is in G major (one sharp) and the bottom staff is in F major (one sharp). The score includes dynamics (p, pp) and measure numbers (5, 6, 7, 8).

CHAPTER TWENTY-ONE. MINOR SCALES AND CHROMATIC SCALES.

1. How many forms of minor scale are in common use?
2. Describe each.
3. Illustrate each, using D as keynote.
4. What does "relative minor" mean? Illustrate.
5. What does "tonic minor" mean? Illustrate.
6. What does "accidental" mean as applied to minor scales? Illustrate.
7. The tonic minor of B major is also the relative minor of what major scale?
8. The relative minor of B major is the tonic minor of what major scale?
9. What are the signatures of the following keys: D major, D minor, B \flat major, G minor, G major, E minor, F \sharp major, F \sharp minor?
10. Spell the tonic-triad of the major scale and of the minor scale, using each of the following signatures:
1 \sharp , 2 \flat , 4 \sharp , 3 \flat , 5 \flat , 3 \sharp , 6 \flat , 6 \sharp .
11. E is 3 of a certain minor scale. This note is the leading-tone of what key? Which is the relative minor of—? Which is 5 of what minor key? Whose seventh degree in the melodic form coming down is what note?
12. Write a similar chain-question on minor scales.
13. Write the melody of "America" in E minor.
14. Write the melody of "Yankee Doodle" in D minor.

15. Write the scale of D major and the five related scales, writing the minor scales in Harmonic form.
16. Write the scale of D minor and the five related scales, writing the minor scales in Melodic form.
17. Write chromatic scales one octave up and down in the following keys: G major, D minor, B \flat major, G minor.
18. A piece written in F minor will *probably* modulate first to what key? To what other keys will it probably modulate? To what keys will a composition in E \flat major probably modulate?

**CHAPTER TWENTY-TWO. INTERVALS IN MINOR SCALE,
AND ALL USUAL INTERVALS.**

1. What intervals occur in the minor scale that do not occur in the major scale?
2. How are diminished intervals formed?
3. How are augmented intervals formed?
4. What are the most *usual* diminished intervals? Illustrate.
5. What are the most usual augmented intervals? Illustrate.
6. What are the two diminished Fifths in B minor? In A minor?
7. Between what degrees does the augmented Fifth occur?
8. Write three kinds of Fourth on B \flat .
9. Write three kinds of Third on D.
10. Write three kinds of Fifth on A flat.
11. Write the diminished Seventh in any six minor scales.
12. Start on D. A diminished Fifth up; Change enharmonically; A diminished Seventh up; Is six of an harmonic minor scale; A diminished Seventh up; Change enharmonically; A diminished Fifth up; An augmented Fifth up; Is the leading-tone of what harmonic minor scale?
13. Write a similar chain-question, introducing intervals in minor keys.

**CHAPTER TWENTY-THREE. CHORDS AND PIECES
IN MINOR.**

1. Write all the triads in D minor.
2. In what two minor keys does each of the following triads occur, and on what degrees? E-G \sharp -B. D-F-A. E-G-B \flat .
3. Complete these broken-chord exercises, using chords I, IV, V, V \flat , I:



4. Add simple altos to the following sopranos:



5. Write a simple soprano above each of the following altos:

6. After completing each of the last two exercises, play the soprano while singing the alto; then play the alto while singing the soprano.

CHAPTER TWENTY-FOUR. THE SIX-FOUR CHORD.

1. In what respect does this chord differ from the other chords studied?
2. Where is this chord most frequently used?
3. Describe the progression of the voices when the chord resolves.
4. What note is doubled in this chord? Why?
5. Is a chord to be determined solely by the notes heard simultaneously, or does context have something to do with the matter?
6. Is the first chord in the following 4-measure passage—the C major triad, C-E-G, or is it the E minor triad with C as a non-harmonic note? What reasons have you for your analysis?

7. Play the following chords in all minor keys: $\begin{smallmatrix} 1 & 5 \\ 1 & 1 \end{smallmatrix}$ | $\begin{smallmatrix} 6 \\ IV \end{smallmatrix}$ $\begin{smallmatrix} 1 \\ IV \end{smallmatrix}$ | $\begin{smallmatrix} 1 \\ I_6 \end{smallmatrix}$ $\begin{smallmatrix} 7 \\ V_7 \end{smallmatrix}$ | $\begin{smallmatrix} 1 \\ I \end{smallmatrix}$

CHAPTER TWENTY-FIVE. SUPERTONIC TRIAD.

1. Spell the II chord in A major, and the II chord in A minor. What is the difference between the two chords?
2. Does a diminished triad sound well with its root in the bass?
3. How is the II chord inverted?
4. In G major the Supertonic triad is A-C-E; to what other triad in the key is it most closely related?
5. What is the most usual progression of the chord II? Of II₆?
6. The most usual progression of chord V is to chord I, the root of I being a fifth below the root of V. Is there a similar tendency of root-progression in the usual resolution of chord II? Illustrate.
7. Play the following in all major keys while singing one of the voices:

8. When the Supertonic triad moves to the Dominant triad there is a common tone between the two chords. Is this tone retained in the same voice? If not, why not?
9. What is the melodic tritone in the key of F?

10. What is the harmonic tritone in the key of G?

11. Play the following in all minor keys while singing one of the voices.

I | II₆ V | I I | IV V | I ||

12. What is the progression of the three upper voices in moving from IV to V? What will the progression probably be in moving from I to II?

13. Play the following in several keys, varying the position of the upper voices:

I I | II II | V I | V
I I | IV II₆ | V V, | I ||

14. Write the chord background of the following melodies:

15. Analyze the following pieces harmonized with the chords thus far studied:

1

2

3

Musical score for piano, page 173, measure 3. The score consists of two staves. The top staff is in G major (two sharps) and the bottom staff is in G minor (one sharp). The measure begins with a forte dynamic (mf). The right hand plays eighth-note chords, and the left hand provides harmonic support. Measure numbers 3, 2, 1, 4 are indicated above the notes. The dynamic changes to *p* at the end of the measure.

Musical score for piano, page 173, measure 4. The score continues from the previous measure. The dynamic is *cresc.* The right hand plays eighth-note chords, and the left hand provides harmonic support. Measure numbers 3, 2, 1, 4 are indicated above the notes.

4

Musical score for piano, page 173, measure 5. The score continues from the previous measure. The dynamic is *mf*. The right hand plays eighth-note chords, and the left hand provides harmonic support. Measure numbers 4, 3, 2, 1, 8 are indicated above the notes.

Musical score for piano, page 173, measure 6. The score continues from the previous measure. The dynamic is *p*. The right hand plays eighth-note chords, and the left hand provides harmonic support. Measure numbers 4, 2, 3, 4, 2, 1, 8 are indicated above the notes.

5

Musical score for piano, page 173, measure 7. The score continues from the previous measure. The dynamic is *p*. The right hand plays eighth-note chords, and the left hand provides harmonic support. Measure numbers 4, 2, 3, 4, 2, 1, 8 are indicated above the notes.

Musical score for piano, two staves. Treble staff: measure 3 starts with a eighth-note followed by six sixteenth-note pairs. Measure 4 begins with a half note, followed by a crescendo dynamic (cresc.) and a eighth-note followed by six sixteenth-note pairs. Bass staff: measure 3 consists of eighth-note pairs. Measure 4 consists of eighth-note pairs.

Musical score for piano, two staves. Treble staff: measure 5 starts with a eighth-note followed by six sixteenth-note pairs. Measure 6 begins with a dynamic (p) and a eighth-note followed by six sixteenth-note pairs. Bass staff: measure 5 consists of eighth-note pairs. Measure 6 consists of eighth-note pairs.

Musical score for piano, two staves. Treble staff: measure 6 starts with a eighth-note followed by six sixteenth-note pairs. Measure 7 begins with a eighth-note followed by six sixteenth-note pairs. Bass staff: measure 6 consists of eighth-note pairs. Measure 7 consists of eighth-note pairs.

Musical score for piano, two staves. Treble staff: measure 7 starts with a eighth-note followed by six sixteenth-note pairs. Measure 8 begins with a dynamic (p) and a eighth-note followed by six sixteenth-note pairs. Bass staff: measure 7 consists of eighth-note pairs. Measure 8 consists of eighth-note pairs.

Musical score for piano, two staves. Treble staff: measure 8 starts with a eighth-note followed by six sixteenth-note pairs. Measure 9 begins with a dynamic (p) and a eighth-note followed by six sixteenth-note pairs. Bass staff: measure 8 consists of eighth-note pairs. Measure 9 consists of eighth-note pairs.

Andante

Musical score for piano, page 8, measures 8-9. The score consists of two staves. The top staff is in treble clef and the bottom staff is in bass clef. The key signature changes from G major (two sharps) to F major (one sharp). Measure 8 starts with a forte dynamic. Measure 9 begins with a piano dynamic. Measures 8 and 9 are divided by vertical bar lines.

Allegro

Musical score for piano, page 8, measures 10-11. The score consists of two staves. The top staff is in treble clef and the bottom staff is in bass clef. The key signature changes from F major (one sharp) to C major (no sharps or flats). Measures 10 and 11 are divided by vertical bar lines.

Musical score for piano, page 9, measures 12-13. The score consists of two staves. The top staff is in treble clef and the bottom staff is in bass clef. The key signature changes from C major (no sharps or flats) to B-flat major (one flat). Measure 12 ends with a dynamic marking "mf". Measure 13 begins with a crescendo dynamic. Measures 12 and 13 are divided by vertical bar lines.

Musical score for piano, page 9, measures 14-15. The score consists of two staves. The top staff is in treble clef and the bottom staff is in bass clef. The key signature changes from B-flat major (one flat) to A major (no sharps or flats). Measure 14 ends with a piano dynamic. Measure 15 begins with a forte dynamic. Measures 14 and 15 are divided by vertical bar lines.

Musical score for piano, page 9, measures 16-17. The score consists of two staves. The top staff is in treble clef and the bottom staff is in bass clef. The key signature changes from A major (no sharps or flats) to G major (two sharps). Measure 16 ends with a dynamic marking "mf". Measure 17 begins with a forte dynamic. Measures 16 and 17 are divided by vertical bar lines.

Musical score for piano, four staves, in 2/4 time, key signature of one sharp (F#). The score consists of five systems of music.

Staff 1 (Treble Clef):

- Measure 10: Dynamics *mf*, *f*.
- Measure 11: Dynamics *mf*.
- Measure 12: Dynamics *f*.
- Measure 13: Dynamics *p*.
- Measure 14: Dynamics *f*.

Staff 2 (Bass Clef):

- Measure 10: Dynamics *mf*.
- Measure 11: Dynamics *mf*.
- Measure 12: Dynamics *f*.
- Measure 13: Dynamics *f*.
- Measure 14: Dynamics *p*.

Staff 3 (Treble Clef):

- Measure 10: Dynamics *mf*.
- Measure 11: Dynamics *f*.
- Measure 12: Dynamics *p*.
- Measure 13: Dynamics *f*.
- Measure 14: Dynamics *f*.

Staff 4 (Bass Clef):

- Measure 10: Dynamics *mf*.
- Measure 11: Dynamics *f*.
- Measure 12: Dynamics *p*.
- Measure 13: Dynamics *f*.
- Measure 14: Dynamics *cresc.* *f*.



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